The Medical Times

VOL. XXXIV NEW YORK, JANUARY, 1906 No. 1

ORIGINAL ARTICLES

THE X-RAY AS A THERAPEUTIC MEASURE.

BY GEO. R. WILSON, M.D.

PART I.

FINSEN was the most important worker in placing upon a scientific basis the therapeutic action of light; a native of Iceland, he received his preliminary education in the Faroe Islands, completing it at the University of Copenhagen, graduating in 1890. His health gave way at this time, and his arduous scientific labors were carried on while he was suffering from a most painful and incurable disease. His first published work on the Effects of Light on the Skin appearing in 1893, attracted widespread attention; and in 1896, as a result of his investigations, Finsen's Medical Light Institute was established in Copenhagen, and in 1899 he published the first of his series of monographs, in which he recorded his researches. It is a serious loss that Finsen has been lost to medicine at such an early age; but fortunately he made singularly clear, detailed, and accurate reports of his observations, so that an exhaustive study of light in its possibilities is helped by the data he left.

In light a remedy of no mean order exists, which in the near future will occupy a most exalted position in therapeutics. Rosenberg reports 27 cases confirming this statement, showing that blue, violet and ultraviolet rays are almost a specific against pain, such as lumbago, torticollis, pleurodynia, acute and chronic neuritis; the ultraviolet light rays being obtained from an iron carbon arc of high amperage. The bactericidal powers of the chemical light rays are seen in inflammatory conditions of the skin of parasitic origin, while in acne and furunculosis, the curative effect is both prompt and certain. In gonorrheal peritonitis and catarrhal inflammation of the deep urethra and adjacent structures the results have been encouraging, while in rheumatic arthritis the rays failed to be of signal benefit.

Gilchrist suggests the advantage of using the X-rays in the treatment as well as for the diagnosis of fractures; the apparatus necessary for this method of managing fractures being a complete X-ray outfit, of either coil or static machine, with the usual accessories. An ordinary wooden top table can be used, or one made by laying two pieces of pine lumber, 6 feet long by 12 inches wide and 1 inch thick on a firm support about 18 inches high. The tube is placed on a stand underneath the table, from 4 to 8 inches from the under surface of the board. To prevent burning, the table can be covered with a rubber blanket. By means of the fluoroscope placed over the injured part the conditions of the fracture can be seen constantly, as can also every movement of the fracture extremities during their adjustment, avoiding the necessity of giving an anesthetic for diagnostic purposes, saving the patient many painful manipulations, and the tissues from bruising and laceration by unnecessary handling, in other words, setting the fracture by the use of the fluoroscope.

The complete cure of an extensive multiple vascular nevus on the face of a young girl was accomplished by Bordier; applying a compressor to cover the region with pressure sufficient to blanch the skin the sound skin between the patches being protected by tin foil, the current of 16 to 18 amperes was turned into the arc light for an hour, the sitting being repeated daily. The exposed parts then looked as if they had been burned, and the applications were suspended until the burned tissues recovered, requiring about ten days. The daily applications were then resumed, four of these series being required; the entire nevus was finally cast off as an eschar leaving sound skin in its place underneath.

Williams has discovered that the rays from radium salts, unlike the X-rays, are not useful in diagnosis either by radiographs or fluoroscopic examination; but the beta-rays from radium salts will heal some cases of new growths that are not cured by the X-rays, and act more promptly, though over a more limited surface. Radium salts at an activity of 8,000 or considerably more, are not strong enough to be efficient, and pure radium salts which have a radioactivity of about 1,000,000 are not too strong for the work to be done. Radium rays, unlike the X-rays, are uniform, and great care must be taken to avoid burning the tissues.

Vose and Howe, in studying a series of 120 cases of cancer with reference to the effect produced by the X-ray on cancer, found that a uniform technique was necessary to be certain of the uniformity of the results. The first effect on ulcerated surfaces was that of stimulation, shown by the formation of granulations, but under continued exposure the epithelial edge is destroyed and healing is retarded, and it is difficult to decide at what point the beneficial influence ceases. Some contracted and painful scars have softened and have become much more pliable with diminution of pain, although this is not an invariable effect, nor can any histologic change be shown. Eighteen painful cases were treated; of these, nine patients were temporarily or permanently benefited, in some the benefit amounting to almost total relief; five others received a similar benefit when the brush discharge from a high frequency machine was added, but the other four cases showed a distinct increase of pain, and two patients who had no pain at the start developed pain later, while two patients complained bitterly of pain coming on after exposure, and lasting from a day or two. Cutaneous cancer treated by the X-ray undergoes degeneration not peculiar to this form of treatment, or distinguishable histologically from degeneration from other causes; the vascular changes being limited to an endarteritis; new formation of blood vessels occurs if healing takes place, as in the process of repair elsewhere; and there is an increase of elastic tissue. The only cure of cancer by the X-ray is by destruction and exfoliation, which once limits its value to superficial cases; this destructive process being slow and acting superficially. Many essentially chronic superficial epidermoid cancers may be removed permanently by surgical procedure, that course

167799

seems preferable to the somewhat tedious treatment by the X-ray, and as they both may fail, an extensive surgical operation, if necessary, may be undertaken more promptly, as it is non-selective in its action, the X-ray cannot be used strongly enough to affect destruction of anything but the shallowest tumors without serious injury to the overlying and surrounding tissue, or, in other words, without producing a burn which may never heal.

As to the influence of photodynamic substances on the action of X-rays, Kothe grows enthusiastic over the increased action of the X-ray after the tissues have been previously injected with a one per cent. solution of eosin, an hour before exposure. He claims that the injection of eosin enables the course of X-ray treatment to be shortened, shortening the exposure, while the reaction occurs sooner, and is more intense than without the eosin. The eosin injections also restrict the energetic reaction to a circumscribed area, while the uninjected surrounding sound tissue scarcely feels the action of the X-rays. The first suggestion of the use of X-rays in leukemia or in pseudoleukemia, was made by Dr. A. J. Ochsner, and the first cases of this sort reported were three cases which Pusey reported three years ago, two of which were demonstrated. One of these cases was a splenic leukemia, which had inadequate treatment, and was reported as a failure. The other two cases were cases of pseudoleukemia which he showed symptomatically cured. The first of these patients, a child four years old, had a recurrence of the disease in the neck seven months later, which was removed by operation, and the child died within a few days of inspiration penumonia. In the second case, in which there had been very large glands, the patient is living and at his work at the present time. For two years after he was presented to the society he was well, he thought, and had no further treatment. A year ago he developed large mediastinal glands with pressure symptoms, but, much to surprise, recovered under X-ray exposures given for a month. Recently he appeared again with some glands the size of an olive in the neck and groins which have just disappeared under X-ray exposures. Except for these two months he has been in his usual health and vigor for three years. He has had several cases of pseudoleukemia which have cleared up under X-rays, but no other case that he has been able to follow so closely as this one. His experience in removing the enlarged glands in true leukemia has been as favorable as in pseudoleukemia, but in most of the cases the improvement in the blood has not kept pace with the decrease in the glands; while the patients improved, the results have not been radical.

As to the use of the X-rays in leukemia, Meyer and Eisenreich report two cases of myeloid leukemia thus treated which differ in several points from other cases that have been published. In one patient, a machinist 31 years old, the blood findings altered completely under the influence of the rays, and notable leucocytosis followed, with most cells predominating, and at the end of four months the leucocytes had fallen from 165,000 to 6,100, but then rose again to about 22,000, and later to 35,000. The general health was very much improved, the working capacity being restored, the patients gaining in weight, and the proportion of red corpuscles and of hemoglobin approximating normal. The blood findings altered so materially under the influence of the rays that no one would have suspected leukemia from the blood picture, and the spleen returned to normal size in the first case, but remained enlarged in the second case as the leukemia was of longer standing, and the symptoms more serious. Following stoppage of the treatment the blood findings have displayed a tendency to return to the leukemic picture, so that the hope of permanently curing leukemia in this way is not so bright. They found that exposure of the liver and spleen in healthy subjects failed to show any action of the rays on the autolytic fermentative processes. Wendel has collected and reported from medical literature 38 cases of leukemia treated with the X-rays, and adds another of his own, finding that more than 90 per cent. were favorably influenced. In two instances no appreciable benefit was observed, and in two the disease rapidly progressed notwithstanding the treatment; in another case the patient succumbed to an intercurrent disease, and in another to a rapid recurrence.

In two others death ensued, although the patients seemed to improve at first. He finds that no case of acute leukemia has been treated as yet, and the myeloid variety seems to afford a better prognosis than the lymphoid, although cases of the latter have improved.

Schieffer is still more enthusiastic, for he has treated five cases, and he pronounces three of them cured. One patient abandoned treatment after being materially improved by a few exposures, while the fifth patient, a man of 46, almost moribund, was benefited at first, but the symptoms recurred after a few weeks, and the patient soon died in collapse. The earlier in the disease the treatment is instituted the better the results attained; the spleen alone being exposed in Schieffer's cases, and when treatment had to be discontinued on account of dermatitis the improvement still continued to improve. Schieffer ranks Roentgen treatment of leukemia with the digitalis treatment of heart affections, for there are few measures, he claims, which produce such unmistakably favorable effects. In treatment of myeloid leukemia, the spleen in the case reported by Schleif extended a hand's-breadth to the right of the linea alba, reaching to the region of the symphysis, it was firm to the touch but not painful. The changes in metabolism and in the composition of the blood are tabulated by Schleif, and they show great improvement under the X-ray treatment. The exposures aggregated 800 minutes in the course of four months, about 650 minutes being devoted to the spleen and the rest to the bone marrow; at the end of this period the red corpuscles numbered 3,600,000, the leucocytes 28,600, and the hemoglobin 80 per cent.; the patient felt and looked extremely improved. The treatment was supplemented by the use of arsenic. The treatment was suspended at the end of four months on account of diarrhea and ascites.

Tousey reports a case of uterine carcinoma which was remarkably benefited by X-ray treatment; here the treatment consisted in allowing the X-ray to shine through the uncovered abdominal wall, and also through Nott's speculum, and in the application of high frequency currents; the current used being the 110-volt direct current, with a liquid interrupter of the Simon's type. An 8-inch coil, a 40-cm. tube, and a rheostat which cut the currents down to about 4½ amperes were also used. The vacuum in the tube was adjusted for each treatment to correspond with an internal resistance of about two and a half inches, and a penetration of two or three layers in Tousey's radiometer. The distance was nine inches from the anode of the tube to the

nearest surface of the patient; time of exposure, about five minutes over the abdomen and five minutes in the vagina. The high frequency currents were taken directly from one pole of the X-ray coil, by means of an insulated cord passing from the coil to an insulated handle by which the operator held a glass vacuum electrode which was placed in contact with the skin. The patient's life was prolonged for a year, and death resulted from a serious gastric disturbance which was not of a cancerous character. He found in a second case very similar results.

Sunlight reflected into the throat as a means of curing laryngeal tuberculosis is unreliable for systematic treatment. Sorgo believes that the application of artificial light is feasible, for as the laryngeal tissues are loose and succulent, and as they have never been accustomed to the action of light, they are affected by even the parallel rays; Sorgo believes that it will not be necessary to focus the rays. Thus the patient can apply this light treatment himself without the necessity for complicated apparatus, a current of 60 milliamperes being ample. But as yet Sorgo has had no opportunities for practical experience with artificial light; and he believes that adrenalin is a valuable aid in treatment. Edematous conditions seem to be a contraindication to this light treatment.

Ewart was one of the first to speak of the similarity of the emanations from radium and the X-rays; but the physicial laws governing the X-ray should be understood to use them efficiently; the vacuum tube changes in resistance, becoming more rarefied in proportion to the discharge which passes through it. The rays arise at the anticathode, and that point should be taken in estimating their relative intensity, and the exposure should be inversely as the square of the distance. The intensity of the ray in the reverse aspect of the tube will depend (1) upon the thickness of the photographic plate, and (2) upon the penetrating power of the ray. An apparatus for therapeutical purposes must maintain absolute constancy, as nearly as possible. Accumulators kept well charged are more constant than the current taken from the main by means of a transformer, and to ensure greater constancy the tube must not be allowed to get hot; this will be a means of prolonging its life. The screen and the operator's hand should not be used to judge of the penetrating power of the rays on account of the lack of an absolute standard, as well as the danger of such a procedure. The proper interval between the terminals determined by experiment must be maintained, only the duration and the interval of exposure must be varied, remembering that avascularity and the opacity of the tissue are concerned in the production of a reaction. The differences in the duration of the latent period of the reaction are due to variations in the intensity of the ray, and lack of uniformity in the accessory details of application. The reaction presents the ordinary features of an inflammation, the various stages of which are prolonged, and examination of tissues which have been subjected to X-rays shows that the epithelial cells undergo cystic degeneration and disappear, and in another case that the cells are invaded by leucocytes, the vessels dilated, and that inflammation exists. Ewart thinks the X-rays is a clumsy means for the treatment of lupus, and not as efficient as the Finsen light, while the benefit to malignant disease by means of X-rays is questionable. Rodent ulcer being superficial is usually benefited, but sarcomata are seldom improved by them. Pain is frequently relieved in hopeless cases, but the relief cannot be compared to that which is obtained from a hypodermic of morphine. If the patient is too feeble, or the growth too extensive for removal, or has recurred repeatedly the rays may be tried. In eczema relief is rapidly obtained, but is only temporary; in tinea sycosis relief is obtained with rapidity and permanency.

To measure X-rays Franklin suggests a method based on the power of the X-rays to ionize the gases through which they travel; the method is substantially analogous to that now commonly employed to measure the radioactivity of the radioactive substances, thus air is rendered a conductor of electricity by the ionizing agent, and measurement of the amount of current flowing through it under given conditions gives an absolute index of the activity of the radiation. The electroscope is charged by coming into contact with the knob, a rod of vulcanite which has been electrified by friction, while this knob is brought into communication with a filament while the vulcanite is in contact, and is released as soon as the filament has assumed a horizontal position. The electroscope is brought to the same distance from the tube as the patient or plate, and while the tube is running the shutter is open, and the time in seconds occupied by the filament in transit is determined.

A diabetic patient, who had a patch of lupus on the buttocks for nearly twenty-eight years, was treated by Dorn with the X-ray. The cancroid had developed on this patch, but the ulceration, 5 to 6 cm. in size, healed under Roentgen treatment to a most satisfactory extent. Diabetes in this case (7 per cent. sugar on ordinary diet), is no contraindication to Roentgen treatment, and the success in this case was especially gratifying on account of the duration and extent of the lesion and the lack of any special reaction to the X-ray exposures.

The work done by Battersby in the Soudan, and by Beevor in the Indian campaigns has impressed the English authorities with the importance of military X-ray outfits. After the battle of Omdurman there were twenty-one cases out of one hundred and twenty-one in which the bullet could not be detected by ordinary means, but in twenty cases an accurate diagnosis was made by the X-rays, the remaining case being too ill to be examined. The senior medical officer in charge reported that "The Roentgen rays proved of invaluable assistance in localizing the exact position of bullets, and in many instances rendered probing of wounds unnecessary." In this campaign an ingenious device was used to charge accumulator cells, a small dynamo driven by a tandem bicycle answering admirably to charge eight separate E. P. S. cells used with 10-inch coils. This device may commend itself to workers in out-of-the-way places, away from electric supply stations. In Beevor's case the X-ray work was done in cold climates amongst the mountains; in Battersby's in the heat of the Soudan, thus proving that extremes of climate are no barrier to the successful use of the X-ray.

The red-tape limit has probably been reached in the following incident (for which we do not however vouch): In 1877, a young French doctor applied for a small post under the Government. He heard nothing more of the matter until recently, when he was required to fill up a blank in order to get a nomination for the position he had applied for nearly thirty years before.

A NEW CONSUMPTION BLOTTER.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

EVERY year brings with it a new calendar, revised in its artistic design, reversed in the combination of its refreshing color flourish—but it does not obliterate any standard facts of the zodiac nor change the laws of relation between the earth's soil and that soil's annual crop productions. From the genius of the world's business enterprise there float abroad in perpetual succession the diverting advertising blotters which are planned to constantly turn up to attention the latest mastering ideas over the past conventionalized fad that ambitious competition has timely turned down as another superb failure.

Within the cycles of our later twenty years there have been heralded to us comets of cures visible above the horizon of medical doubt, cures that would set the world on fire with glorious admiration; but the world has in nowise yet gone out of the same old business of doctoring and burying her undiminished concourse of victims of tuberculosis. Then and anon there have been boomed to us new and flattering blotters for the elimination of consumption from society about us everywhere; then and anon these new and specialty cures have not for an hour blotted out the hectic blush of said consumption. Tuberculosis has remained the steady-stepping blight of the people—the uneffaced failure of every doctrinal proposition that sighted its aim of elimination by the bead and shot of tuberceline inoculations. The parturient Old World keeps herself busy at giving birth to prodigies for the spontaneous United States to nurse and patronize. She has sent us her Patti, her Irving, her Madame Bernhardt to coin inexorable riches from our glad and fawning people, people who dispose themselves to practice the Yankee knack of blessing also their home stores with the prodigious profits of American industry adroitly syndicated under grafting capitalists. The Old World sent us also the marvels of Koch's cure for consumption, and disputive theories anent the human risks of pork and milk and rare beef steak transmitting the atrocious microbes of tuberculosis, but said tuberculosis, nevertheless, though a constitutional degeneration, to be arrested and cured by the puncture of hypodermic needles and the squirt of anti-tubercle serums beneath the skin of the population!

The latest Old World tuberculosis blotter heralds to us the victorious coming of "A New Consumption Cure," in a few months later to be delivered formally to the American people. Its significent advent was paternally announced at the late international congress in Paris by Professor Von Behring—who proposes to "bring it within the reach of the poorest people in every part of the world within a year, according to a statement made recently by a member of Professor Von Behring's American agents." According to a prominent New York daily, this agent does not concede that Von Behring is holding back his announced discovery for the sake of the money to be gained from its exclusive use. It is in evidence, according to advance advertising report, that Von Behring has conducted his line of experiments among cattle. He has devised a vaccine serum. He calls his vaccine "bovo-vaccine" for the immunization of cattle from tuberculosis. He infers that his preparation may be appropriately applied to mankind! The mercantile inference suggests that for the sake of being immunized against liability to consumption every man, woman and child in this scourged land will glady bare arms for the reception of hypodermic doses of this miraculous antituberculous vaccine. If each arm operated on rate at from ten cents (for the price is to be brought within reach of the poorest people) to one dollar per arm for the founder of this experimental germicide bluff, let the skilled accountant get out a copy of the census statistics and report the prodigious sum of patent right receipts for the new vaccine owner. Next August is reported as the time set for inaugurating the delivery of this new antitubercular serum to our expectant public, which means the anticipative practicing physicians who reach all classes of the public. Special rates are to be considerately arranged with philanthropic institutions and to persons in poor circumstances who cannot afford to pay standard prices—and in extreme poverty there are to be discriminating gratuitous distributions.

But it is rational deduction that the difference between curing an animal even, that unmistakably has tuberculosis, and supposedly immunizing a healthy animal that needs no cure, involves an adroit juggle of self-contradiction in the face of this plausible proposition. If the studious Professor will take for demonstration one hundred cows that have markedly run down in flesh notwithstanding abundant food, that are weak and languid with debility, that have a betrayal habit of cough, that yield milk revealing the so-called bacillus of tuberculosis—and he then by injections of his bovo-vaccine serum cures even seventy-five per cent. of these diseased cattle, making them healthy, thrifty and sleek—then the eminent Professor Von Behring has proved his test to be a cure as claimed. But to switch off from his radical proposition by inoculating a hundred healthy cattle that may never develop tuberculosis though belonging even to the same pasture, means nothing decisive if because within a year or two years they manifest no observable evidence of consumption. The real difference between a visionary possibility and the patent fact of a thing that actually is, measures the difference between the fancy of a fable and a material truth.

Unfortunately for the world, the mastering conditions of vital degeneration in developed tuberculosis of positive character are locally and constitutionally such that no serum inoculation beneath the skin can arrest the disease; and all expectations of success raised by the promising serum cures in these grievous cases at best prove to be pretentious fakes. Consumption has not been abated one whit since the Koch cure was so plausibly boomed. And if we complacent students of nature—natural cause, natural results—may be permitted to express in advance what is coming by Von Behring as evinced by what is vanishing out of sight by Koch, we can already see the futile end of this new consumption blotter before it arrives. In a few years after, the sunken graves of dead things alike resemble each other—grass of forgetfulness covering all. It is doubtless true that between Dr. Koch's theoretic ken, according by which he wrought to establish his desired object, and Dr. Von Behring's counter theorem by which he hopes to establish the value of a new therapeutic discovery in his name, it is said there exist direct opposites of position. It is reported that Professor Koch has sensibly held that human tuberculosis does not come from animals that have that disease. Von Behring,

however, thinks he has determined by experiments that tuberculosis from animals is communicable to mankind. It is acutely doubtful that he has ever practically proven this assumption. But by his reasoning process he expects to identify the two diseases, animal and human, as the same. In legal phrase, his attitude to the Koch doctrine is John Doe *versus* Richard Roe—and the jury may all die before the true verdict is reached. But without waiting, Von Behring proceeded to tentatively strengthen his position by producing what he claims is a curative medium by which animals experimented on by him should be rendered immune to the tuberculosis germ on the principle that dog eat dog if the stock be generically identical. Von Behring, if I understand him, took the tack that the principle of his curative medium rests upon the impregnation of the living cells of the organism with a substance originating from tuberculous virus. But it is a travesty of pathological logic to assume that animal poison kills animal poison of the same sort, and hence thereby becomes a cure—when considered in the broad terrific sense of systemic degenerative tuberculosis. Von Behring's anti-toxic serum for the cure of diphteria has fulfilled nothing definite except theoretic promises, inasmuch as the annual crop of cases of diphtheria continues as enormous as before or ever—even increasingly so.

The anti-diphtheria serum treatment has been pushed in Philadelphia for more than it is worth by all the forces of the agents of the local Board of Health, by gratuitous dispensation, by the potential enginery of professional obeisance and public fear; but the report of diphtheria cases for the three weeks ending to-day, November 25, 1905, with the moderate temperature and delightful air of Indian Summer, is two hundred and eighty-six cases, with thirty-eight deaths. The frisky professional shift and the versatility of news reporters aver that the increasing number of contagious cases and deaths have been "caused by climatic changes" —the same old chestnut! Listen to their deprecative libel on these perfect days, with scarcely a divergence of comfortable temperature—just cool enough to enjoy a moderate heater fire and closed windows. These latter and not the prestige of any microbes through "climatic changes" explain the problem. When a man with bacilli in his eyes studiously starts out to pursue an object of that vision, and shapes to fit it with a theory of set purpose, he gradually sees it so distinctly in his dream that he believes it is bodily always before him. Such is the nature of brain concentration. Von Behring doubtless theoretically believed that he had discovered the exact germicidal antidote to diphtheria. And that belief, fallacious as it proves to be in effect, naturally lends itself to the kindred belief that he has similarly promulgated a germicidal antidote for tuberculosis—a pathological theorem that may at least for experimental purposes win out a flank doctrine against his rival Koch. But it is no less certain that a misjudgment, though sincere, that veers too far to the right from the safer middle of the bridge for the sake of steering away from the left, must land the embellished idols with which said misjudgment is freighted among the overspanned brush of disappointment.

When Koch discovered the bacillus or ferment attending tuberculosis degeneration, he apparently disposed himself to infer that he had discovered what it was that caused consumption. He, therefore, set about divising an antitoxin combatant to that bacillus, supposing that thereby he might abort and stamp out consumption. He failed to broaden out his reasoning to the mastering natural fact that it was the process of systemic devitalization and degeneration that made cause for the presence of the very ferment or bacillus he found in consumption. With his mind's eye pursuing the trail of the bacillus, he overlooked the futility of attempting its neutralization EXCEPT by blotting out its existence through the regeneration of vital energy by the natural media of purified breathing-air and reconstructive nutrition. Pouf! pumping "sterilized lymph" under the skin of consumptives to squelch "germinal" ferment developed by decay in the breathing channels and lung cells. Open gates and doors to every dirty and gaseous poison that can be inhaled with every breath! What a sophistry to common sense when one can independently examine the hypothesis with disencumbered mind! How incomparably superior is the rationality of prevention and cure which bases its study on the conditions and aggressions that naturally devitalize the blood corpuscles and scourge the lung tissues to death? If I mistake not, both Koch and Von Behring seem disposed to consider milk and meat the wholesale conveyers of tuberculosis to the human system—though the doctrine has been stoutly rejected by other distinguished teachers. Milk from a tuberculosis cow would be an undesirable proposition, but let us examine into the problem a step or two. Suppose, for argument concession, that a ferment-impress of bacillian nature find way into the milk, it is not there as drawn from the breast of woman; then why so when drawn from the udder of a cow? But, furthermore, if a discoverable or undiscoverable element of ferment of bacillus type reached the stomach with foods, what must happn to it when impounded by the solvent flush of gastric juice that settles everything usually swallowed into a converted product of its own normal mash? Let us come down off the shed awhile and analyze the soil of rational deduction! Does one out of every ten who passively salaam over the classics of microbe dynasties really comprehend that a bacillus is as destitute of vitality as is a soap bubble! That it may be produced as readily and as readily dispersed? Our recent microbe mania has as little reason for its dominance in credulity and literature as a disease-maker, as had the mania about the malevolence of witchcraft in the seventeenth century, with its thousands of condemnations to execution. The philosophy of Ella Wheeler Wilcox is superior wisdom when she exclaims to her quarter million readers: "Don't spend your life dodging germs! Do not be one of the fear lunatics! Do not become a germ maniac or a food crank! Life is a beautiful privilege if we let our thoughts rise above the digestive organs!"

The anti-microbe blotters that the mail continually delivers are labeled with their assurances of special prophecy; how generally it may be discerned that the extra assurance has behind it an axe to grind for personal profit. Enterprise makes her opportunities. The graft of Equitable Life Insurance Associations, that construct fabulous wealth for astute managers from the fears of death among trustful common people, is not the one and only. It is altogether true that the world wants to find sure cures for diseases. But it is equally true that a hundred fold more can be done along the line of preserving the lungs by sanitary media than by the intrigue of serum proclamations. Notwithstanding our ideal November weather the present year, with com-

fortable temperature and generally lowered death rate, there are officially reported for Philadelphia during three weeks of November, one hundred and forty-five deaths from tuberculosis of the lungs, also seventy deaths from cancer—both relatively slow forms of disease in which there is measurable time for arrest and cure if blotter serums could demonstrate curative proficiency. Like waves of the sea the succession of great remedies, learnedly projected, roll on the crest of popular push to break on the shore in foam of undemonstrated success. In face of the natural eagerness to secure a positive remedy for the corroding blights of cancer and consumption, it proves the greater pity that equally certain disappointment must blot the anticipations so methodically raised by both Dr. Koch and Dr. Von Behring through their elaborate theories of cure in tuberculous disease by inoculation of the blood with antidotal lymph. Aside from the éclat fanned by the breeze of popular interest with which bold and ardent experimenters may surround themselves in the sensitive medical sphere, it is almost surprising that learned men of candid and cautious instincts would specialize their study to such theoretical and speculative extent that they either will need confess that they voluntarily embrace a self-credulous problem in physics for its novelty—or consent, each in his way, to elaborate an experimental paradox to engage the hopes of an expectant profession and public for whatever capital could accrue from its trade in trust. In this age of smart profit-seeking, men rarely work hard and long without an eye to substantial remuneration. Men live not by word of breath alone, but by the bread and butter comfort also of pecuniary income.

From the physical limits of the situation a rather tamer, more reserved reception and result doubtless await the Von Behring blotter cure. Hopes unduly raised by the yeast of enthusiasm, naturally relapse into incredulous apathy, and appreciation ultimately flattens to the more effective hard-tack of conservative deduction. Nevertheless, so warm is the color of concentrated belief on the part of the inventor of this inoculation remedy, that the Professor himself is said to feel confident of securing with it as satisfactory results as he did by interesting the world in his serum method of treating diphtheria. But against this assurance yet echoes the declaration of Dr. Virchow, of Berlin, whose eminence and honesty will ever merit substantial confidence. "I would warn people," he wrote, "against excessive reliance on a protective inoculation against tuberculosis. The hope of discovering a serum against tuberculosis rests on the assumption that one will be able to impart to the cells a resistive power against tubercle bacillus by properly conducted inoculations. It has, however, by no means been proved that the development of the bacillus is dependent upon the cells. This is merely an assumption on which all this serum therapeutics have been built." If we will look somewhat further along the line we will find that even Koch did not leave the fate of his treatment to the luck of his hypothesis. Koch, as doubtless will Von Behring, took precautions to surround his patient with all possible hygienic advantages, and bespoke for the success of his serum treatment all available sanatory aids in special sanataria! He premised also that to obtain "curative action" from his lymph injections, subjects should receive the treatment "in the initial stage" of the disease. He thus threw around his cases a formidable barrier to any widespread utility of his serum specialty on the one hand, and by a miscellaneous test of his specialty on the other hand by declaiming in self-defense: "I would earnestly warn people against conventional application of the remedy in all cases of tuberculosis." Except "in the beginning of phthisis," he stipulated that "in all other forms of tuberculosis, medical art must have full sway by careful individualization and making use of all other auxiliary methods that assist the action of the serum remedy." Thus fenced about, shrewdly and evasively, it left the office effected by the lymph practically nil. When read between the lines, the essence of the antidote may haply sparkle immensely for a Koch or a Von Behring, but fades to a vanishing point for the consumptives. The scapegoat is adroitly saddled with "in the initial stage" of the disease, but "initial symptoms" are not the disease itself. There are hundreds of remedies which may suffice in first symptoms, but, like these lymph blotters, fail to cure in confirmed cases. Even sanatory surroundings alone—pure air outdoors and indoors all the time—freedom from the malaria of bad cellars—avoidance of the corrosive poison of fuel gases in house and shop air—virtues of systematic ventilation and sunlight—relief from exhausting drudgery of body and brain, with plentiful foods and rest—these agencies of substantial health prevent and also cure disease in general—ordinary tuberculosis disease in particular—if timely and faithfully employed—without the tomfool masquerade of serum inoculations in the skin! Koch, at least inferentially, based the repute of his inoculations more on the value of sanitaria than on the inherent virtue of his bacillized lymph. And by the printed talk of Von Behring, his bovo-vaccine cure will stop short of positive alleviation in real cases of tuberculosis, for, as already stated, his experiments have been listed precautiously on the line of ostensibly "immunizing" healthy cattle!

Both Koch and Von Behring deserve accorded credit for their patient investigations in bacterian developments per se. Bacteriology is an absorbing study for the entertainment of investigative minds; but when it is proposed to graft the whole science of pathology on the precarious bacillus, we betray ourselves to a myth of fermented imagination and misjudgment. There was a noted precedent to this antitoxinism—the reduction of the violence of smallpox by vaccine virus. But the relation between smallpox and tuberculosis is unfortunately incongruous. The two forms of disease have no concurrent elements. Smallpox is a short-lived contagious disease, which attacks persons in full health and strength, runs a brief definite course, and there ends, usually, if not in death, leaving the individual as well as before. But tuberculous disease is one of debility and waste; of indefinite beginning and duration; of progressive stages, pauses and relapses, which may compass months or years before the end. Since the subject of tuberculosis is and has been usually living in an atmosphere of bacteria in general, no inoculation intended to nullify bacterian influence by imparting resistive power against tubercle bacillus can hold the fort against a wasting system in which vitality itself is a losing game every successive month of dwindling existence. At best, the injection of formulated stuffs into the blood of a debilitated case is essentially doubtful practice. Koch's lymph operated as a poison, as Koch described the symptoms of an injection on himself: "Pain in the limbs. fatigue, inclination to cough, difficulty of breathing which speedily increased in the

fifth hour and was unusually violent. A chill followed, which lasted almost an hour. At the same time there were nausea and vomiting, and rise of body temperature or fever. After twelve hours these symptoms abated. A feeling of fatigue and pain in the limbs continued for a few days, and for exactly the same period of time the sight of injection remained slightly painful and red." This picture is an emphatic demonstration of the human system to rid itself of the poisonous aggression of serum lymph, or bovo-vaccine as well, when it comes to the practical test. After all, it will require five years to prove that Von Behring's inoculations possess either remediable or preventable virtues—all blotter announcements of hasty cures or immunizations being premature and sensational advertising, to grace the bulletin board of hope. Many deaths by tuberculosis were considered hastened by the use of the Koch cure, and after a feverish vogue of experiment its supposed prestige waned. Kingly honors and harmless decorations may reward knights of new projects for the obliteration of persistent diseases; but while the badge of honor may be gracefully worn as evidence of heroic proposition for the alleviation of the suffering, the "discovery" smolders to ashes of failure and the death lists remain undiminished. Tuberculosis and cancer yet must be dethroned by the superior antidote of purified blood through the sanitary riches of purer breathing-air indoors and outdoors, day and night time, every hour of existence.

1728 North Twenty-second Street.

THE DUALITY OF ALL ORGANIC STRUCTURE.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

Part II.

I have said in a former essay that the coming together of two protozoon cells, which are protoplasmic and never more, is the beginning of a rising duality, and we found in that essay that on the one side, we have protoplasmic force, and on the other, nervous, but if the coming together and fusion of two masses of protoplasm, as shown in the most primitive organisms, which never develop a nervous system and dual structure or force, it must be here evident likewise because protoplasm is formative, and whatever is formative must be likewise structural, and if, as we very well know, the structure of nerves proper is protoplasmic, although their function is a thing distinct in itself, yet must they also be dual. For to maintain the union of distinct elements or forces and the same being protoplasmic and sexual or not, a dual structure, no matter where it builds. So that on the protoplasmic side we find that in intrauterine life which undoubtedly represents the perfect evolutionary stages through which they have been evolved and represented in lower organisms in the blood corpuscles, a first set of which is formed from embryo cells and which eventually disappear, being replaced and superseded by a second set formed from lymph corpuscles, and in these also we may see an example of the length of life of elemental parts being determined by their activity of function; for if the development of the tadpole, for instance, be retarded by keeping it in a cold, dark place, and if in this condition the function of the first set of blood corpuscles be slowly and imperfectly discharged, they will remain unchanged even for many weeks longer than usual, and their individual life will be thus prolonged, and the development of the second set of corpuscles will be for the same time postponed. Now this fact so plainly manifest in the experimental history of the tadpole, unquestionably points us to two forces which are also made manifest by a double blood power, we assume from this, therefore, that perhaps the single sexual element is developmental, and the compound or impregnated ova both developmental and structural, and this would seem in nowise far-fetched, seeing that certain fertile eggs can be produced *without the aid of the male.* On the other side we have development, a distinction being plainly evident between the same and increase and growth, and our position made plain when we point to the fact that development in all cases means that power of nature to make over in corresponding image its own structure, part for part, and holding in exact counterpart the embryonic impress, subserving and not losing. Thus we see dwarfs and giants which developmentally are similar, yet when we come to increase or growth, we lose sight of the same, for the giant does not contain a greater perfection than the dwarf, nor *vice-versa.* It is plainly evident, therefore, that we must look to a higher state of form or composition that development differs from growth or increase. In growth, no change of form or composition occurs, but parts only increase in weight and usually in size; in growth there is an addition of quantity but no improvement in the quality of a part; the power of the growing part increases with the growth, but it is only more of the same power, so in the attainment of manhood, the heart of the boy, having all its necessary parts and all well-formed, acquires perfection by acquiring greater bulk and therewith greater power. Now in the formative process as it is normally manifest in the adult, parts only preserve their status and no perceptible change of size or weight ensues. No change of form or composition, a sameness being maintained through the regular formation of new parts in the place of those which in the ordinary course of life die or are impaired, but the formative process which is one part of our division or structural protoplasmic duality is best manifest in that power of reproduction or reparation, whereby certain primitive animals are again supplied with limbs, tails, or what not, after being once lost, and which is sometimes plainly seen in intrauterine life, even of the human species, being first manifest however in inorganic life as crystals. The reparative power in animals being highest in those lowest polyps in which the materials of the germ-mass are least transformed but are multiplied and grouped into the shape of their very bodies. In the Hydra Veridis and Hydra Fusca, it seems literally true that any minute portion divided from the germ-mass may, after being separated from the perfect body, reproduce the perfect form. Cut a Hydra into four or into fifty pieces, and each becomes a perfect Hydra. Cut off its head and it develops a new one, split its body at the head and you may develop ten heads, each of which performs the perfect function of eating; and as we approach a step higher, say to the Hydra Tuba, if cut in half, each half may regain the perfect form, although less rapidly than the former. But this remarkable power of reconstructing a whole and perfect body by the development of a fragment is limited, and is only found in such species that can propagate by spontaneous fission or gemmation, or that increase their size as some of the Anellata do by the successive additions of rings that are developed after the

manner of gemmules from those that precede them; where this power is not possessed, whatever be the position of the species in the animal scale, the reparative power appears to be limited to the reproduction of lost members, such as legs, claws, a part of the body, the head, an eye, the tail, and the like, and within this limit the rule again seems to hold good that the amount of the reparative power is in an inverse ratio to that of the development, or change of structure, and mode of life, through which the animal has passed in its attainment of perfection or on its way thitherward. Here then, we have an exemplification of the law of formation as manifest in these lowly creatures and which by gradual steps is lost in so entire a process as we approach man, the reparation of whose body is limited to those tissues which are formed entirely by nutritive repetition as the blood and epithelia, or to those of lowest organization or low chemical character, as the gelatinous tissues, or which are inserted into other tissues and not essential to their structure, being accessory. And thus we behold that whether on the one hand we believe the restoration of a part, as in the leg of the Salamander; to be due to retained embryonic cells, from which are developed the lost part, or whether the formative process resides altogether within the nutritive stream, it matters not, seeing that the leg is replaced in perfect form, and which points us to the fact that residing within the protoplasmic cell, we have the power of formation, and which builds to an exact likeness, minus the law of variation, the child to the counterpart of its parent, and at a corresponding age. On the other side of protoplasmic force we have the remaining part of this duality of form, viz., growth, and which consists of the increase of a part or of the whole body by addition of new material like that already existing, the essential character of each organ or tissue being maintained with its quantity increased; for a general expression of the course of events we may say that the development and the growth of the body go on together till all the natural structures are attained, and that then development ceases and growth goes on alone till the full stature, and the full proportion of each part to the rest are gained. But this is only generally true, for we cannot say that all development ceases at a determinate period, since some organs may go on to be developed when many others are complete, neither can we assign the period of terminated growth, since not only is the period even generally stated very various in different persons, but some parts, unless placed in unfavorable conditions of disease, continue growing to the latest period of life, yet on the whole the law is true, and we are not here searching for exceptions, but for the whole law, consequently, to protoplasm from its primitive side must we ascribe an accompanying duality (and this is necessary seeing that as in the oak, protoplasm builds majestically), and yet without the nervous, and seeing also that we have ascribed a duality to all organic structure. Therefore, from the side of protoplasm we behold a duality of form or structure, the one formative, and the other additional, both of which are nutritional.

If, as in the foregoing, we observe that an accompanying duality is coincident with protoplasm itself, the same being the result of the union of two forces which are at all times manifest by the union of distinct and separate sexual elements, then as we build higher should this same duality of structure subserve and be always evident, for if on the one hand we find that this same dual structure runs coincidently with protoplasm itself, then on the other, must be likewise evident a like structure being nervous, if we should look to the histologic structure of all nervous organization we shall likewise find it composed of two elements, both of which possess special vital properties, the one being formed of nerve fibres which are composed of thread-like strands of protoplasm and which connects the elements of the other or nerve corpuscles which form the periphery or central terminals of the fibres, nerve fibres being simply conducting agents having at one end a special terminal or nerve cell for sending impulses, and at the other end a nerve cell for receiving the impulses, and the terminal organs between which the nerve fibres pass are the agents which determine the direction in which the impulses are to travel along the nerve. We look therefore for ganglia composed of the vesicular nervous substance and serving as the centres of nervous power and for cords and trunks composed of the tubular substance, and serving to communicate between the ganglia and the parts with which they are to be functionally connected. Now it is quite certain that no such nervous apparatus can be detected in many of the lowest animals. Among the radiated classes the parts of whose bodies are arranged in a circular manner around the mouth and repeat each other more or less precisely, the nervous system presents a corresponding form. In the starfish, for example, which is one of the highest of these animals, it forms a ring which surrounds the mouth and this ring consists of nervous cords which form communications between the several ganglia, one of which is placed at the base of each ray, and the number of whose ganglia corresponds with that of the rays or arms. The ganglia likewise appears to be all similar, the one to the other in function, as they are in the distribution of their branches; every one of them sending a large trunk along its own ray and two small filaments to the organs in the central disk, the rays being also so similar in structure as to be exact repetitions of each other, it would appear that none of the ganglia can have any controlling power over the rest, all the rays in certain species have at their extremities what seem to be very imperfect eyes, and so far as these can have any controlling influence over the rest. All the rays in certain species have at their extremities what seem to be very imperfect eyes and so far as these can aid in directing the movements of the animal, it is obvious that they will do so towards all sides alike. Hence, there is no one part which corresponds to the head of the higher animal, and the ganglia of the nervous system, like the parts they supply, are but repetitions of one another, and are capable of acting quite independently; consequently each would perform its own individual functions if separated from the rest, but in the entire animal their actions are all connected with others by the circular cord which passes from every one of the ganglia to those on either side of it. And thus we see that in the lower order of animal life in which is evident the first promise of a future nervous mechanism, a ganglionic system is evolved; each segment evolving a pair, as in the ringed worms, and the arthropods, and as we have just seen in the starfish a ganglionic system or centre rather, for each ray or arm. Now it is a startling fact indeed that as we go higher in the scale of animal life we find that this primitve form of nervous mechanism is not lost, for in articu-

dated and vertebrated animals there is a similar repetition of corresponding ganglia on the two sides of the median plane of the body and these are connected by transverse bands analogous in function to the circular cord of the starfish. Moreover we also see a like repetition of ganglia almost or precisely similar in function in passing from one extremity of these animals to the other, these ganglia being connected by longitudinal cords, whose function is in like manner commissural. Now it must be at once plain that in the gradually ascending plane of organic existence as manifest in the animal, the nervous system first became evident as a series of ganglia each evolved to subserve some new addition of structure, as before noted in the ringed worms, each being complete in itself and capable of separate action, therefore we need express no surprise that as we have before seen each segment may evolve a new and complete creature if severed. Again it must be entirely evident that the gangliated nervous structure before us subserves some useful and immediately vital end in the economy of those evolving structures which sustained them, and this we find at all times apparent in the ends attained by those lowly organisms, which, having arisen above the vegetable, were gradually attaining a higher structure, and these upon minute examination we find to relate to the involuntary, or that which directly appertains to those vital processes upon which life itself momentarily depends, viz.: circulation, respiration, and the like. But we are not surprised to find that in the highest structure of animal life or man, this primitive ganglionic system is still evident and indeed subserving its highest end, which we at once behold in the great Sympathetic nerve, which consists of a series of ganglia connected together by intervening cords extending on each side of the vertebral column from the base of the skull to the coccyx, together with three great gangliated plexuses or aggregations of nerves and ganglia situated in front of the spine in the thoracic, abdominal, and pelvic cavities and consisting likewise of smaller ganglia situated in relation with the abdominal and other viscera and of numerous nerve fibres which are communicating and distributory and from which the greatest of all systems take origin, viz.: the vaso-motor.

And thus we have on one side the gangliated or involuntary system of nerves to which the vaso-motor system belongs, and on the other we have the cerebro-spinal, or voluntary system. Now, as is well known, the cerebro-spinal system or nerves belong to the vertebrates in contradistiction to invertebrates, and while as in all other structure of organic origin a thing gained is permanently gained, so long as it subserves a useful purpose and is therefore exercised, and as in the evolution of nerves the ganglionic or involuntary being the system of life itself, we find in addition in this higher structure not only this system but likewise the former which we find to be voluntary. The cerebro-spinal system or that of voluntary action therefore consists of the brain and spinal cord, the cranial nerves and the spinal nerves. Therefore, from the other half of our division of all physical phenomena we behold two phases, the one ganglionic, vital, or involuntary, and the other cerebro-spinal or voluntary.

Consequently in our structural duality which on the one side is protoplasmic, we have the formative process, while on the other, we have growth and from the other side, we have the nervous, which upon examination we find to be divided on the one side into a most primitive structure, viz.: the ganglionic or involuntary, or if you please, vital, which is life itself, while on the other, we have the cerebro-spinal, or voluntary, or intellectual, which is the guiding power; and what is more, we find that each is joined to the other.

PALIMPSESTS OF PARASTHENICS.*

BY T. H. EVANS, M.D., PHILADELPHIA, PA.

Continuing my previous study[1] of cases of parasthenia, from the standpoint of a sympathetic entering into their lives and the elements of life as they know and appreciate it, we will plunge straightway *in medias res* with the notes of the following:

Case I. Mrs. A. G., a weaver, aged 47 years. When I first met her it was under the tragic circumstances of her attempt at suicide. About six in the evening I was hurriedly called to attend her. She had just swallowed several drams of tincture of opium.

Entering her house, which was upon a narrow, poorly-kept street in the outlying districts of the mill section of Kensington, I found her surrounded by an excited and weeping family. The house was two stories in height, and contained four rooms. The bedroom had a bare, unstained wooden floor, and was empty except for a bed, which occupied half the available space. Upon this she sat, the picture of misery and despair. A couple of wooden chairs were brought in from somewhere, and the oil lamp which sat upon a narrow shelf in one corner of the room was turned up so that I could see better, for in March the shadows fall early.

At a glance I took in the dilapidated style of dress of the members of the family, and I remembered that her son, who rented the house, was apt too often to spend his money on drink. I knew that some four months' rent was owing, because the house belonged to my father. Beside the son, there were in the room, his wife, an ill-kempt girl of twenty-two, one of his sisters, and one of hers, a younger brother, and a couple of neighbors, whose curiosity managed to pass for sympathy and anxiety.

I found that Mrs. G. had been working very hard, and contributing more than she could afford to the expenses of the family. Her husband was not dead, but was living with another woman.

One look at my patient confirmed my diagnosis. She was a weaver, and on account of scarcity of money had been living under wrong dietary and hygienic conditions. And her face, with its furrowed brow and the contracture in asymmetric lines of the circumorbital muscles told the tale of outraged nerves and an atrocious astigmatic anisometropia.

I soon learned of petty quarrels in the family, which undoubtedly aggravated the distress which she felt on account of the evil doing of her husband. But the test of the case came in the results of treatment.

She was at once ordered to bed and given a hot pack. Other treatment to eliminate the poison was instituted. After which, in the course of a few days, she rapidly recovered, with the use of shaded lenses.

It has seemed strange to me that in the Weir Mitchell Rest Treatment, as used to-day, so little attention is given to the eyes, although the most rigid care is a matter of routine to shield the ears from disturbing noises. In nearly every case of altered nerve tone, whether from constitutional irritation, or ocular defect, some retinal hyperesthesia or parasthesia develops.

I am sorry to say that the case passed from my care after three months, so that I cannot report its present state. But I do know that as soon as I had relieved Mrs. G.'s eye-strain, all the psychic commotion and distress went away.

In the next case, Case II, that of a bookkeeper, Mr. J. M., aged 44 years, we have an example of true narcosomania for alcohol, as a result of parasthenia aggravated by local irritation in the form of anisometropia. Mr. M., for two years, had resisted all influences to drink. Suddenly one evening while in New York City, on business, he had felt ill, and went to a saloon for a little whiskey. And then the trouble began. Re-

* A further report of cases, with comment.

[1] Palimpsests of Parasthenics. First Studies: chiefly a contribution of data, with comment.—Med. Times, Dec., 1905.

turning to Philadelphia he was ashamed to go home, and went to the house of a good friend, from which he sent for me. He told me that he had been doing extra night work for several weeks before, and had taken cold repeatedly. He was feverish, and presented symptoms of the type of Grip.

I had his eyes refracted by Dr. W. L. Pyle. In addition to this, he was put under a strict routine of diet, sleep, work, bathing, and recreation. As is my custom, he was ordered to eat any selected articles as often as he felt a return of the craving for narcosis. In the months which have elapsed he has not returned to his bad habits. And this is the more remarkable since his outbreak after two years' prudence made us fearful that he was going back to the bad habits of former years.

Case III. Mr. G., aged 43 years, a weaver. This patient is able to go from Sunday to Saturday without using alcohol. But if he starts to drink Saturday night he keeps it up twenty-four hours, and on Monday is frequently not fit for work. I found his eyes needed attention. The results of lenses were very unsatisfactory, and on re-examination were found to be improperly adjusted. Later on, the lenses were changed on account of my belief that the axis of astigmatism was not correctly estimated. Even with this change he is not doing very satisfactorily. In his case I believe there are elements of muscular malnutrition, systemic as well as ocular.

The general sense of well-being which we experience from muscles of good tone and vigor this patient does not have. The case is too recent to report finally. But it is well for the physician to be prepared for disappointments, and be ready to seek out any possible cause in troubles of this kind. The relations with members of the family must be studied, and I do not think that his wife is one suitable for a man of this peculiar temperament. Again, his work is distinctly a disadvantage.

But in treating cases of parasthenia occurring in people of little or no financial position, as we must who treat those who need us most, for among the working classes are the majority to be found, it is well to develop methods adaptable to poor hygienic environments.

Case IV. Mr. T. T., aged 41 years. An artist and expert designer. This patient in years past had a large earning capacity, and taught classes in prominent schools of Textile learning.

When he came to me, he told me that two years previously he had suffered what was called a light "stroke." I could not discover any symptoms of apoplexy, and concluded that he might have had a suffusion of lymph at the base of the brain.

His manner of speech was interrupted and yet not rapid. His features were sharp, and his skin, on the arms, and back and chest, had the peculiar satiny smoothness of a woman. I discovered other indications of unstable sexual organization. And found well marked symptoms of neurasthenia of that cyclic form with climaxes, and subsequent retardation, that I have called parasthenia.

I found in this case, through the kind assistance of Dr. Pyle, that a strong ocular feature was involved. Again results were not very satisfactory. There were no signs of retinal disease or injury. But the ocular muscles were in very poor shape. A course of massage and hydrotherapy benefited him very much, and later on he admitted the relief which proper lenses gave to his eyes.

In this case, while strictly parasthenic, the climaxes were not marked by any resort to a narcotic. Mr. T. never drinks, and rarely smokes. But I believe that he often overeats during the time of rising nerve tension, and that many of his nervous headaches, or bilious spells, are distinctly the passing off of climaxes to periods of nervous excitation.

Case V. Mr. R. M., aged 29 years. I was first called in to treat him under the distressing circumstances of his taking laudanum with the intention of killing himself, and found him sitting in an attitude of despair on the edge of the bathtub, with his head over a basin, for they had already administered an emetic, rather against his will. His wife and a business acquaintance of his were with him. His wife is a most peculiar woman, of the blonde type, and with a manner of walking and speaking as though she was continually in a dream. I learned afterward that during her engagement to Mr. M., he had discovered her in unfaithful relations, but married her nevertheless, and loved her very much. Mr. M.'s first wife had died about four years previously from typhoid fever. There had been no children.

His attempt at suicide to-day arose from a discovery of his business friend's presence in the house, alone with his wife. It appears that this friend's family had gone to Europe, and he was boarding, that is taking his meals with Mr. M., but sleeping at home.

Mr. M. is a paperhanger, and has his store in the front of the first floor of his house, during the day the door of which is unlocked, naturally. Mr. M., returning to-day unexpectedly from work, found the door closed and locked. Opening it with his key he hastened in, and was surprised to find his friend hurrying downstairs, buttoning his clothing. In a moment he discovered his wife and at once accused her.

Both of them are very nervous people, and in a moment he went to the bathroom and drank from a bottle of laudanum. His friend remained in the house, and protested his innocence, sending straightway for me. I managed to convince my patient that there had been a misunderstanding.

After treatment, Mr. M. and his friend entered his business wagon and went for a ride. They continued on good terms. I convinced Mr. M. that it would be impossible to attempt to do anything, and as he assured me of his love for his wife, I advised him to do nothing.

This was not the end of the case, however, as will be seen further on. But before that, I wish to add a few notes to this case. Mr. M. is of average height and build. But his voice has the peculiar weakness and huskiness of the parasthenic, in all its variability. He is very anxious to have children. But after two years' marriage, has not succeeded in his desire. I am led to believe that his wife is of a cold nature, and on the other hand, that Mr. M. is hyperesthetic and excitable.

Mr. M. is subject to headaches which result from frequent gastrointestinal derangements. His eyes ought to be attended to, but as yet this has not been done owing to his reluctance to wear glasses.

Case VI. Mrs. R. M., the wife of the preceding. Suddenly, one evening, I was called to her residence, only to find her in a state of unconsciousness. All the windows of her bedroom were closed tightly and the door as well, with its keyhole plugged. She lay on the bed, and all the gas burners were turned on full head, but unlighted.

It was her husband's wish to have her taken to the hospital, because when they sent for me I was out, and they had at once telephoned for an ambulance. She was in the hospital three days.

On her return, the neighbors being told that it had occurred through accident, she walked freely in the neighborhood. But at all times her manner had that peculiar impassive, distant, dreamy characteristic mentioned before. Her voice is soft, but the words are clearly uttered. All her muscles move as though stupefied. And yet I am sure that she does not use any narcotic.

I believe in this case there is an element of difficulty of coordination at the base of the brain. Since her attempt at suicide, she and her husband have lived together very happily. It must be remembered that in all cases of parasthenia the stage of climax is separated by intervals, longer or shorter, in which nervous tension does not reach a critical point. In the treatment of these cases we must search out every possible cause of the stage of climax.

Case VII. "Whitey." This young fellow, so known about town, and mentioned under that name in the paper preceding this, is a cocain fiend of the worst and the most miserable type. He is about 19 years old, and spends most of his time sitting in a little room which opens onto a fruit-stand in the Tenderloin of Philadelphia, where the woman who keeps it allows him to sit and recover from the influence of the "dope." He is a pathetic spectacle, with whitened complexion and straggling hair, ill-kempt and underfed. Beneath his torn clothing is no such thing as underwear, and a collar he has not worn for months until the other day when his friend T., whom I have rescued from the same life, took him that and some other clothing.

"Whitey" comes of south of Ireland parentage, and his people do not disturb themselves in the least about his degradation. In the case of T., who was born of one of the best families of Philadelphia stock, the organization of body is utterly different, and responds at once to the call of intellect.

There is nothing in "Whitey" to work upon except a blind, doglike devotion to his friend T. It seems that T. came around the neighborhood pretty much under the influence of cocain one day, and "Whitey," not liking him near the fruit-stand, told him to "get the hell out of here!"

At once he received a staggering blow, and since then is the devoted slave of his friend T.

I hope that T.'s efforts to help "Whitey" will succeed. It

is a little pathetic to hear T. talk about his friend; T. himself being so recently snatched from worse than death.

In walking through the Tenderloin, T. has shown me a couple of roundsmen (of the police force) who "hit the pipe." These men have a dull, lymphatic stupid feature, and walk lazily about.

With a young roundsman, C. McC., young T. frequently would go to dances and saloons; the roundsman, who is only 23 years old, drinking excessively, and trying to get T. to do the same thing.

All of these people know each other well, and the lives which are led in the Tenderloin are open to any one who cares to read.

"Whitey" gets a bath now and then, when his friend T., who did a little work, would spare him the necessary five cents. But he had to be taken to the bathhouse by his friend, or the money would never have gotten so far. "Whitey" does not work, except at such little jobs as Signora C., who keeps the fruit-stand, finds for him. Once she sent him to the cellar with orders to chop some wood, and in his anxiety he chopped up every stick and plank that the cellar held, and a couple of old chairs in the bargain, before she came down to investigate the results of all the clatter that his resistless strokes set up.

But usually he sits, quiet, on a little chair in the shadow of the room. And screened by the fruit-stand gives himself up to all sorts of bad habits, taking snuff of cocaine through a little quill toothpick, as is commonly used, and very often, as I said in the previous paper, openly masturbating.

At times he will stand with his arm around an electric-light pole, staring into the filth of the street—looking for money. "Looking for money," he will murmur. And sometimes he will find a nickel. In talking with T. late one night, he pointed out to me a miserable, neglected looking man, who slouched by the corner of the square. "That fellow would run from here to the river for a couple of pennies, though he won't work, only to be able to buy 'dope.'"

"Whitey," somehow, manages to get money in small sums, and more often than not sleeps under the fruit-stand until noon. He is a true example of disturbed mind-rhythm.[2] His period of necessary waking and sleeping added together does not equal twenty-four hours. In certain stages of his parasthenic cycle it is greater and in others less than that time.

I have not exhausted my patience in efforts to help him and trust to be able, in later papers, to give a more hopeful report of him.

Before I close I want to speak briefly of some of the relations of these people to Esthetics and Art.

They all have a great liking for the theatre. The lights and brilliancy and gaiety touch them and their over-sensitiveness with a resistless appeal. They are fond of making rhymes, and often show a remarkable power of memory for doggerel verses. In all of this we must separate that which is strictly vicious from that which is unmoral.

I think very often that their senses, as well as their sensibilities, have been cultivated wrong, so that they are unable to judge as normal people do. More than that, I believe that their optic and auditory apparatus does not respond to stimulus as they should, and further that we must be able to distinguish between *peripheral* and *centric* difficulties.

Since the writer has secured perfect ocular refraction, the world is new to him and his ideas of beauty in the human face have radically changed.

These abnormal people are usually anisometropic and astigmatic. I do not doubt but that their ears incorrectly report sound. Certainly they present many peculiar variations in tactile sense. Among criminals there is often a great instability in the sense of pain. This subject is very large, but what I have said will be enough to show the absolute necessity of our appreciation of their modes of life and viewpoints before we can do anything for them. I recommend to others the value of going down to these levels and assimilating experience as they do.

What it means to be hungry, and to be shattered by drink, and to be dirty, and to be sick, and to be nervous, and to be hopeless—do we understand?

[2] A Preliminary Report on the Relations of Mind-Rhythm to Nervousness.—Am. Med. (to appear).

DISEASES OF THE EAR CAPABLE OF TREATMENT BY THE GENERAL PRACTITIONER.

BY WILLIAM WORMLEY, M.D.

MANY of the ordinary cases of ear trouble can be treated properly and with propriety by the general practitioner. I will outline my ideas upon this subject.

In the first place furunculosis of the external meatus can be nicely treated, by syringing the meatus out with a weak antiseptic solution, then the meatus plugged with a tampon of cotton wool which should reach the drum. Such a tampon can be previously dipped in some such solution as that composed of forty parts of the oxide of zinc, six parts of carbolic acid, and three hundred parts of white vaseline. The pressure of the tampon and the action of the ointment should effect a cure. The only care required in this condition is to differentiate it from anterior abscess of the mastoid, which should not be difficult.

It is in the middle ear that most of the troubles occur that reach the general practitioner; this organ consists of the Eustachian tube, the tympanic cavity, and the mastoid antrum and cells. Remember that in inflammation of the middle ear usually only the Eustachian tube and drum-cavity are affected, the mastoid cells being rarely implicated in the acute condition.

Acute inflammation of the drum-cavity arising from inflammation in the naso-pharynx and Eustachian tube may be set up by irritation entering from the external auditory canal, and through the membrana tympani, but the usual source of this acute inflammation is from inflammation in the nares and naso-pharynx, involving the mouth of one or both Eustachian tubes, and then affecting the middle ear by direct transmission up the Eustachian tube or by a reflex mode of progression.

Otologists divide acute inflammation of the middle ear into two very distinct and important forms,—viz., the catarrhal and the purulent. Catarrhal inflammation is characterized by the formation of a mucous, mucoserous, or even muco-purulent secretion from the mucous lining of the drum-cavity, often affecting both ears, and frequently unattended with perforation; while purulent inflammation on the other hand is characterized by more violent symptoms, the formation of pus in the cavity of the tympanum, and extensive destruction in the membrana tympani.

Taking up first the catarrhal form as the simplest variety, we find that most middle ear disease begins in the following way: the first sensation is the "stuffed sensation" in either or both ears; this is seen most commonly in the so-called colds in the head. Let us see what exists here on which inflammation can work. Lying between the mouths of the Eustachian tubes is a rich glandular territory, resembling somewhat the tonsils, often called "the pharyngeal tonsil," while the nares are amply supplied with blood-vessels in the erectile tissue over the turbinated bones. In coryza all of these nasal and naso-pharyngeal structures become engorged

and directly transmit inflammation to the Eustachian tubes or press upon their mouths; this swollen state of the naso-pharynx at the least induces a stasis near the Eustachian tubes, maintaining an irritation in this sensitive region. We know that unimpeded nasal respiration and unimpeded aeration of the Eustachian tube are absolutely necessary to the maintenance of a normal ear, so on the appearance of a "cold in the head" impeded nasal respiration and aeration of the naso-pharynx, Eustachian tube, and middle ear occurs. An acute catarrhal otitis media, exists in such cases. Frequently the stuffed feeling in the ears, and even some dull pain, pass off in a few days by spontaneous resolution; but in other instances this fortunate termination does not take place, but the stuffed sensation felt in the early stages of the coryza increases rapidly, perhaps in both ears. The patient's own voice sounds hollow, which symptom may be succeeded by a positive dulness of hearing for objective sounds, and at the same time more or less tinnitus aurium sets in. This pain may become severe in catarrhal otitis media, but rarely as severe as seen in the purulent form; while coughing, sneezing, and eructation become more or less painful in the earlier stages before secretion occurs. When secretion has formed in the ear the patient may experience vertigo, from the distention of the drum-cavity with the products of inflammation; this inflamation pressing upon the fenestræ on the inner tympanic-wall, compresses the labyrinth-space and the fluid in it; this pressing upon the nerve filaments in the ampullæ of the semicircular canals, produces vertigo. The membrana tympani thus affected at the outset of the inflammation, will appear dulled in lustre and reddened in the region of the membrana flaccida, around the periphery and down the handle of the malleus; while gradually, in severe cases, this redness may extend over the entire membrane, and the whole surface looks rough and flattened, but not retracted. The accumulated secretion behind the membrana may bulge the membrane outward, if the matter in the drum-cavity be thick and copious; if it is thin and not very copious, it will be pushed inward by the membrana, which now becomes retracted from the absorption of air from the tympanic cavity; being due to the disturbed equilibrium in atmospheric pressure on the inner side of the membrane which enables the outer air to press the drum-head inward, and thus the retraction takes places. Should the membrane be not thickened nor greatly congested, when the fluid is thin, it may be seen behind the membrana, and, if air is then forced into the drum-cavity through the Eustachian tube, bubbles may be seen in this fluid behind the drum-membrane. In actual experience in a purely catarrhal otitis media, the inflammatory process advances no further and suppuration is not reached; at this point the pain stops, the hissing tinnitus and the dullness of hearing with autophony remain, although the patient may experience some dizziness when walking; the process in the nares and naso-pharynx will have been arrested, and the discomforts of the patient do not increase as a rule. The membrana tympani may rupture spontaneously, and an escape of mucus take place; this spontaneous perforation may occur at any portion of the horseshoe zone lying between the periphery and the manubrium of the malleus, and running from the antero-superior quandrant to the postero-superior quadrant of the membrana, the spot most favorable to drainage being the postero-inferior quadrant. Generally as soon as the drum-cavity has thus emptied itself and the inflammatory process subsided, the perforation will close spontaneously, in some instances remaining open only a few hours. In others the perforation may close after the ear has discharged for a time. Generally, however, in acute catarrhal otitis media the drum membrane does not spontaneously open, while the pain is usually of a light character and short duration, ceasing as secretion appears.

Should the attack not be the first one the membrana may be thickened from the previous disease, and even if mucous is behind the membrane in the drum-cavity, it cannot always be readily seen, unless it be in large quantity, and yellow or reddish in tint; if the entire cavity is not full the surface of the fluid in the drum-cavity can be seen as a dark line running horizontally across the membrana tympani about half way up or higher, near the sort process of the hammer-bone. After inflation this line may break up into bubbles, or the force of the inflation may scatter the fluid away into the deeper recesses of the middle ear and mastoid antrum; in such cases the fluid is nearly transparent and amber-colored, unless there is considerable admixture of blood, when, of course, it will be reddish. In acute catarrhal cases the membrana tympani, after secretion has occurred, is much more likely to be retracted than bulging; the latter being observed only in the more severe cases bordering on, if not reaching, the purulent stage. The auricle is not sensitive to touch, nor is the mastoid apt to be sensitive to pressure in ordinary acute catarrhal otitis media. A tendency to spontaneous arrest exists, and in some instances to spontaneous resolution and return to a normal condition, if the subject is in good health, and the process is not modified by any epidemic influence as influenza, or by blood poison, as in syphilis or malaria. Do not hinder this desirable result by injudicious management, but favor it by careful hygiene and cautious treatment.

As this condition starts generally in coryza, let us study the treatment of acute coryza as a preventative; first, a patient should be strictly confined to one well heated, well ventilated room, and the nose should be washed out three times daily, either by snuffing up medicament or by irrigation. I use such an instrument as the so-called "glass bird" with glyco-thymol, or often a glass of hot water, or an infusion of eucalyptus leaves. If much headache persists give some appropriate remedy. I like very much aconitine and the hydrochlorate of quinine. Some authorities advise the sniffing of cocaine, but as a rule I do not use it; if wanted, some such prescription as this is excellent:

℞ Cocainæ Hydrochloratis .....gr. jss
Mentholis .....gr. ijss
Acid. Salicylatis .....gr. viij
Acid Boracis ..... ℥j
Pulv. Amyli ..... ℥jss

Mix and reduce to a fine powder; every two hours a pinch of the snuff may be taken after blowing the nose.

Or:

℞ Bismuthi Salicylatis .....℥ss
Camphoræ Pulveristæ ..... ℥j
Cocaine Hydrochloratis .....gr. ¾

Make a fine powder to be used as a snuff.

Do not give quinine in large doses, or salicylic acid, for they tend to congest the head and the entire auditory apparatus. Be careful of the old-fashioned

"nasal douche" also. It was the terror of my own childhood, and I believe it may do more harm than good, especially if the pressure of the current is increased by raising the reservoir above the head, for in this way the fluid is forced into the Eustachian tubes and middle ear, and the otitis is aggravated.

Nothing should be dropped or poured into the external auditory canal and upon the membrana tympani, even warm water should be avoided; "don't feed a cold;" let the diet be light and give no alcoholic drinks. Dry heat over the ear or in front of it on the cheek will relieve the pain, such as can be obtained by any ordinary four-ounce bottle, or by a hot salt bag, or hot stone or brick rapped in flannel. The Japanese stoves, heated by fuses, make an elegant method of supplying this heat.

Should these simple remedies fail, then punch the congested membrane with a paracentesis needle, which will generally relieve the condition, although the pain may persist for a time. If pain does continue apply leeches in front of, or beneath, the ear, but never in the meatus or the concha.

Early in this condition often inflation of the tympanic cavity, gently done, will diminish the inward pressure by admitting air to the inner surface, and hence stop pain. This can be done by use of Politzer's or Valsalva's method. Valsalva's method is applicable only to adults; it consists in the patient holding his nose and forcing air into the naso-larynx and Eustachian tube. It takes nerve and determination often for a patient to do this; then use Politzer's method, which consists in letting the patient swallow a little water at command, and in that moment, as the anterior wall of the Eustachian tube is drawn away from the posterior, if the air-bag arranged for this purpose is squeezed while the nose-piece is in the naris, air enters the tympanic cavity. Instead of swallowing water, if the patient distends his cheeks with his breath, after the method of Holt, air can be just as easily thrown into the middle ear as when the patient swallows, and in many cases more conveniently and agreeably, especially in the case of children. Great care must be exercised to do this very gently in acute cases, or it may give pain. After the air-bag is emptied the surgeon must retain his grip on the hand-bag till the nose-piece is removed from the nose and washed, for should the air-bag be allowed to fill itself again while the nose-piece is in the nose, or even before it is washed, secretions from the nose will be drawn into it, to be thrown into some other nose, with all the risks of conveying sepsis.

The patient should speedily get well; if he does not, examine the membrana tympani with your forehead mirror, and incise it in the most congested spot, or in the posterior inferior quadrant, or possibly in both places; follow this by use of the Politzer bag.

From this condition remember that chronic catarrh starts, which is the most common cause of deafness.

Acute purulent otitis media often begins as an acute catarrhal inflammation, hence many of the remedies or measures I have quoted are excellent. Now an examination of membrana tympana shows a bulging of its surface generally low down. Perform paracentesis at this point. As pointed out by Burnett, a large portion of the blood supply of the membrana tympani comes from the tympanal branch of the internal carotid artery; this close connection with the large arterial trunk of the internal carotid renders the tympanal branch liable to a rapid augmentation of its supply of blood; also the nervi vasorum of the carotid plexus at this point in its course come largely from the otic ganglion. The third branch of the fifth nerve, supplying the diseased gums and teeth, also communicates with the otic ganglion, which makes a direct channel of nerve-communication, through the otic ganglion, between the irritating tooth or gum, and the blood supply of the membrana tympani. The effect of irritation in the teeth and gums, therefore, is to excite waves of vessel-dilatation in the membrana tympani.

After the discharge of pus has started the ear must be gently mopped with absorbed cotton often enough to ketp it clean and fairly dry; done gently and with due regard to the short auditory canal in children and the proximity of the drum-membrane to the meatus, and also to the sensitive nature of the cutaneous lining of the auditory canal and of the drum-head. Mopping is preferable to syringing, especially in children, but if the syringe is use let it be with plain, warm water, or warm water with a little salt in it (five grains to the fluid-ounce), or with a two-and-a-half per cent. solution of carbolic acid, or the ear may be syringed with a bichloride solution one to one thousand, or one to two thousand, as desired. But all syringing should be done by the physician. When all pain and soreness have disappeared insufflation of boric acid, alone or in combination with some other drug, will be of service, but in the more acute stages they are not well borne. Average cases of acute purulent otitis media will get well if properly treated; cleanliness and antisepsis being the sheet-anchor. It is even better to do nothing but clean the running ear with warm salt and water (five grains to the ounce), than to irritate it by scraping and poking at the ear, and mopping and dropping into it anything of a stimulating or irritant nature, for by such means many a case which would have gotten well has been turned into a chronic otorrhœa by meddlesome aural surgery.

It is necessary for the practitioner to be able to use the mirror and speculum in the diagnosis and treatment of aural disease, and also in ordinary clinical work; the necessary manipulations are not difficult, and are described in nearly all text-books on diseases of the ear, which show the appearances most commonly presented to the surgeon when a good light is reflected from a forehead mirror into an aural speculum properly placed in the external auditory canal. Microscopic examination of the pus in all acute middle-ear suppurations, especially in cases of influenza, is also excellent for diagnosis. If streptococci and staphylococci are present the involvement of the mastoid may be expected, and when the latter threatens the external operation should be performed at once. Phillip's thinks not more than twenty-four or thirty-six hours should be spent over such palliative measures as the ice-coil or hot douching of the ear.

Of course the decision to operate should not be made on the microscopical examination of the pus and blood only, but after studying the usual symptoms, pain, tenderness to pressure over the mastoid antrum, the temperature and the appearance of the drum membrane.

Funke, after a study, decides that there is no specific organism which produces otitis media; the organisms commonly found are in order of frequency: The pneumococcus, streptococcus, pyogenic staphylococci, and the bacillus of Friedlander. This authority speaks of a

definite grippal otitis due primarily to the influenza bacillus, which, however, becomes quickly associated with, or replaced by, other organisms. The bacillus diphtheriæ is more commonly present in otorrhœa than is generally believed. It may (*a*) be the initial infecting agent; (*b*) enter with the streptococcus or pneumococcus; or (*c*) be a secondary infection carried to the already infected ear by the fingers of the patient, or otherwise. The streptococcus infections are more grave than pure pneumococcus infections, but both are usually supplanted by the staphylococci sooner or later. Chronic suppurative otitis media is always polymicrobic, and remember that stubborn otitis media may be tuberculous.

Grimer comes to these conclusions in reference to tuberculosis in the ear: Advanced tuberculous changes may be present in the mucous membrane of the tympanum and of the tympanic membrane itself, without producing visible evidence through the external auditory meatus; the membrana propria of the drum-head offers marked resistance to tuberculous infiltration, and is only destroyed by a process of erosion; and this resistance accounts for the frequency of multiple perforations in tuberculous cases. Latent tuberculous naso-pharyngeal adenoids and all other latent foci must be excluded before deciding that any case of middle-ear tuberculosis is a primary affection. A high percentage of cases of suppurative otitis media with neighboring bone lesion in children under five years of age is tuberculous; in older persons only a small percentage is tuberculous. Intraperitoneal inoculation of guinea-pigs is a good and reliable method of proving the presence or absence of tuberculosis in granulations from the middle ear. Reliable proofs may also be obtained by examining microscopically such granulations, or even an enlarged mastoid gland, or naso-pharyngeal adenoid when present. In suppurative otitis media the absence of ear pain, early and extensive destruction of bone, early facial paralysis, multiple perforations, pale flabby granulations with caseous points in the meatus about a mastoid sinus, or in the mastoid antrum, and an enlarged mastoid gland, point strongly to the disease being tuberculous. The detection of bare bone through the meatus with a probe, the character of the discharge, facial paralysis, and extensive destruction of bone occurring as a late symptom, are of doubtful value in arriving at a diagnosis, while the presence of cholesteatomous masses is positively opposed to tubercles being present.

The Vapor Method of Anesthesia.—The stated meeting of the Medical Society of the County of New York was held at the Academy of Medicine, on Monday, September 25. Dr. James T. Gwathmey read a paper on "The Vapor Method of Anesthesia." He portrayed the evolution in the administration of anesthetics from the time when chloroform was given "powerfully and speedily," and when an unmeasured quantity of ether was poured into the open cone up to the present, when each drop of these powerful drugs is both measured and timed. Snow, Clover, Paul Bert, Junker followed in succession, and assisted in eliminating the unknown and placing anesthetics on a firm and solid basis. The Harcourt Chloroform Inhaler in England, the Braun Chloroform-Ether Inhaler in Germany, and the Gigliementi Oxygen-Chloroform Inhaler in France, represent the very latest contributions towards the accurate administration of anesthetics. The objection to the English and French inhalers is, that they are for chloroform alone, and use closed masks with valves. The Braun Inhaler is the best, but the mask was undesirable. Dr. Gwathmey then exhibited his own inhaler, the unique features of which are that chloroform or ether can be given singly or combined in any desired proportion; the ability to increase or decrease the air or oxygen without, at the same time, increasing or decreasing the anesthetic: the mask, an anatomically correct fitting face piece, the rim of which is hollow and perforated around the inner margin to allow the vapor to escape; otherwise identical with a folding Esmarch mask. This is covered with four layers of gauze, over which is placed a piece of oiled silk or rubber tissue. A small opening is cut in the middle of this gauze, so that, during the induction period, a few drops of chloroform may be added as with vigorous alcoholics. Dr. Gwathmey's Inhaler gives a maximum two per cent. chloroform vapor with a minimum of 1-10 per cent.

The inhaler, which is made by The Kny-Scheerer Company, consists of three ounce bottles, in each of which are four tubes, varying in length from one that reaches the bottom of the bottle to one that penetrates only the stopper. These tubes represent four degrees of vapor strength, the longest, with the mask just described, has an estimated one per cent. vapor strength; the shortest, No. 1, representing a very attenuated vapor, one-tenth per cent. As the mask is not air tight the vapor cannot be compressed, thus avoiding the danger of an overdose. The advantages of this form of anesthesia are:

1. A pleasant induction stage.
2. Stage of excitement absent.
3. Pulse and respiration normal. No mucus rale or billowy breathing.
4. Complete relaxation.
5. Absence of unpleasant after-effects on account of the attenuated vapor used.
6. The continued use of an attenuated oxygen or air and chloroform vapor known percentage, to which an attenuated ether vapor can be added or substituted when conditions require a change.
7. A possible change in the vapor percentage with the same flow of oxygen or air, by a change of tubes or by varying the pressure in the same tube, or by a combination of the two methods.

In the discussion following, Dr. John A. Bodine urged the desirability of overcoming the element of fear. Dr. Franz Toerck expressed himself as thoroughly satisfield with the method, having used it extensively. Dr. Wallace Lee said that he had often used this form of anesthesia, and had never seen a single case of nausea, or any other bad after-effects.

The Gopher is declared by Hemetson (*Med. News*, Oct. 28, '05) to be a possible substitute for the guinea-pig in laboratory experimentation. It is also extremely susceptible to tuberculosis, so that medical men in the gopher belt may have an additional aid in diagnosis of obscure cases. No doubt the happiness and satisfaction of these creatures would be greatly increased if they could know the extent to which the sacrifices they are called upon to make redound to the well-being of the human race.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, JANUARY, 1906

The future comes on slowly, the present flies like an arrow, the past stands forever still.—*Schiller.*

THE SEASON'S GREETINGS.

THE year has rolled around so rapidly that we had almost forgotten that it is the season to take account of stock and to enquire as to the condition of our professional assets.

It seems to us that in the main, the standing of the general practitioner in the community is improving, that the public begins to realize that it cannot get along without him, and that no number of specialists can supply his place.

There never was any doubt from our point of view, that the family physician should continue in charge of the case and he should decide as to assistance from the specialist as circumstances might warrant him in doing.

It has been a little difficult for the layman to understand the situation, but he is gradually doing so, and is turning back to his old friend, the family physician, as the one best fitted to conduct his case, practically holding a similar position to that of the family lawyer.

On the other hand, the family physician has learned to be more ready to ask the aid of the specialist when in doubt, in order to provide his patient with all possible means and skill should emergency require.

It will be a sad day, should it ever come, when the family physician is no more. The trained nurse cannot take his place, as has been suggested, and the specialist, no matter what his line, is not equal to it. The family physician, the specialist, and the trained nurse must go hand in hand if the best interests of the patient are to be considered.

The question of the relations between the profession and the manufacturer of drugs has excited much comment on both sides of the controversy during the last year. The profession generally declines to be used as a means of introducing remedies which sooner or later will be sold to the public. The manufacturer pretends not to understand why the physician will not prescribe his products, while the reason ought to be perfectly apparent. Much of the quackery of to-day is based upon professional endorsement of some kind, oftentimes improperly obtained. The profession cannot be too wary of giving its approval to any article subject to commercial methods. Medicines which are advertised directly to the public are not without risk if they possess any potency at all, and are not only injurious to the users, but to the profession, and their employment should be discouraged with all our might. The same medicine is not indicated in every case of a given disease, and the progressive physician is constantly on the alert to ascertain the symptoms which shall guide in the selection. It goes without saying that the layman is incompetent to prescribe for himself or any one else; but how ready he is to do it!

There are many compounds which are advertised only to the profession, the analyses of which are well-known, and which will never be sold to the public, that are worthy of our confidence and prescription.

A wise discrimination as to what may be advertised to the public, and still retain the confidence of the physician, should always be exercised. Simple drugs or compounds for internal use, in appreciable doses, should not be sold to the public and when they are, the profession should advise against such use in no uncertain language.

Instances of gross injury to individuals are constantly coming to light from the use of articles containing alcohol in some form, to say nothing of the deadly methylic.

We are glad to note that the U. S. Government has forbidden the sale of the nostrums containing alcohol to the Indians, and it would seem as if the prohibition States should work more actively along this line. The query naturally arises: "Where is the Women's Christian Temperance Union in this Crusade?"

There is no longer any need of going out of this country for post-graduate study, most of the larger cities providing for this work upon a high plane. Medical teaching in all branches has been greatly improved in the last decade, the object being to overcome empiricism as far as possible and establish exact law in the practice of medicine as in other Arts and Sciences.

The majority of the profession in this State may be congratulated upon the legal consolidation of its two societies into one. The union is in time for the celebration of the one hundredth anniversary of the foundation of the Medical Society of the State, which takes places this year. It is to be regretted that this society does not include all legal practitioners in the State.

The country has been recently shocked and disgraced by the killing of a midshipman at Annapolis. The report says it was caused by "successive fist blows on the left side of the head," as testified to by the medical officers in charge. The code of honor has thus been

vindicated in the death of a midshipman! The court-martial in the above case has hardly finished its work, when the results of a brutal hazing in the same institution comes to light. It looks as if Secretary Bonaparte intends to put a stop to these outrageous doings at the nation's expense. It is useless to say that it cannot be done, as some claim.

The great number of accidents and deaths from football the past year, is bringing people to their senses in respect to the brutality of the game as at present played. There seems to be some difficulty in placing the responsibility for the authorization of the game, and we would suggest that the grand jury would soon find this out.

There is a vast amount of progressive work being done along many lines, both medical and surgical, some of which will be of immense advantage to the public as well as to the profession.

In conclusion, we have every reason to congratulate the profession upon the outlook as it appears to us. In extending the compliments of the season to our readers, we desire to extend thanks for past courtesies and to assure them of our cordial best wishes for the future.

THE MEDICAL SIDE OF INSURANCE MANAGEMENT.

THE American people are in the luxuries and discomfort of a gigantic housecleaning. Investigations are in the air; everything must be examined and disapproved, whichever way the evidence points. Even the *Ladies' Home Journal* must have a mild exposure; for here comes Mrs. Rorer, the famous cook, with an exposé of college cooking and its inadequacies.

These movements are excellent in their ideas and generally in their results; their disadvantages are that it is generally impossible to check such probes within the realms of reason, for the American people are apt to rush to extremes, and the general distrust and unrest which pervades business and social circles. It is only nceessary now to mention a name in connection with an investigation and it is damned by the public without further ado or evidence.

The question of a national hysteria is a most interesting problem for sociologists to discuss. We saw it displayed in the case of Dewey. He sailed into an unknown harbor and destroyed a few tenth-rate vessels. At once the American public raised him to the seventh heaven; he was treated almost as of divine origin; the country simply went crazy over him and his doings. No attempt was made to estimate his real worth and the actual value of his performances. Such movements must be followed by reaction, and the American people began to look around unconsciously for some crowbar to wrench Dewey off his pedestal. There is no trouble to find cause for criticism if we want to find it, and the people unhorsed the Admiral almost as quickly as it raised him. It did this simply because the hysteria had passed away and the people came to their sober senses. So the unfortunate Dewey, instead of being placed in his proper niche and kept there, was elevated like a demi-god and then trampled underfoot.

It is a terribly serious matter to attract national attention, either favorable or unfavorable, from this great mass of conglomerate minds which we call the American people.

So it is with the insurance examination in this city. The public have momentarily damned all insurance companies; companies that are not being examined or are free from defects feel the slump as much as the companies being criticized—and in it all and through it all, no mention is made of the integrity of the medical departments of the various companies. Underpaid in the most extravagant company and unappreciated, the medical examiners and directors have performed their work, thoroughly, conscientiously and beyond criticism. Yet putting the listening ear to the trembling air, we hear no chorus of praise to the faithful physicians in their positions of trust. The only words that come along the line are commands from the companies' officers to cut down the medical expense alerady down to the bone.

It would be interesting for the Legislative Committee to call the medical directors of the various companies and ascertain their pay. It would be found so meagre that even in companies with one-hundred-thousand-dollar salaries it would be laughable, were it not pitiful. These medical directors control the life-blood of the companies. Their work is the heart, the body, and the soul of the companies' existence, and yet these men, intelligent, skilled and honest, are frequently forced to take practice to keep up their homes in proportion to the dignity of their positions.

When it comes to the examiner, the companies scarcely consider him at all. Even the select few who devote their entire time to examining, find it hard picking. For example, the principal examiner of a principal company in a metropolitan city stated recently, "I sat in a man's office for an hour waiting to examine him for a ten-thousand-dollar policy. He looked healthy and would have passed the inspection of the company as to his business and social standing. But I found a systolic murmur in his heart region, and I believe that that man will scarcely live ten years. I saved my company ten thousand dollars, for which I get the munificent pay of two dollars," and this company is being criticized for its extravagance of management. Surely it is not in the medical department.

Some day on that brighter shore we suppose the doctor will come into his reward. But here we see but little of it. The physician is expected to be honest, efficient and omniscient and live on the clear, pure air which surrounds him.

BRIGHT'S DISEASE.

THE relation of the kidneys to the circulatory system and to the organism in general was perhaps the most important subject of discussion at the Portland meeting of the American Medical Association. The trend of thought here manifested was in general conformity with that evinced in the best European medical organizations. There was a radical departure from old-time views. It was declared there may be circumstances under which albumin and casts may appear in the urine without necessarily being an indication of Bright's; and on the other hand, the kidneys may be markedly involved without any manifestation of casts and albumin. The important point was made that a urinary analysis alone does not suffice for a diagnosis of nephritis; all the symptoms which the patient suffers must be taken into consideration. At all times the heart and the arteries are essential factors; and oftentimes interstitial nephritis is rather a local lesion of arteriosclerosis than an original nephritis.

Another consideration, and a wise one, we think, is that kidney conditions should be distinguished on a clinical rather than on a pathological basis. Two important factors were considered with relation to treatment: In chronic Bright's too much liquid must not be advised, as this only overworks the heart without adequate compensating advantage; here, moreover, the nutrition must be maintained. On the other hand, acute nephritis requires starvation, by which means the kidney is given as complete rest as may be; this consideration should hold also in the acute exacerbations of chronic nephritis. Here much judgment is required.

Among important individual opinions was that of Councilman, who found hypertrophy of the heart in seventy-six out of eighty cases of chronic interstitial nephritis. Cabot declared that kidney disease was always a part and never a whole; it was one lesion of a general infectious or toxic process. Stengel declared that albuminuria and the presence of tube casts were common occurrences in various general diseases—gout, diabetes, tuberculosis, syphilis, cystitis, pyelitis, heart and arterial diseases—as well as in nephritis. Shattuck stated the leading principles in the dietetic treatment of nephritis to be: such control as we have of this disease lies in diet and mode of life rather than in drugs; the drugs which are useful are so because of their effect on the heart or on the general organism rather than on the kidneys directly; the kidneys should be spared unnecessary work; in acute nephritis, as well as in acute exacerbations of the chronic forms restricted diet and rest should be essentials of good management; in chronic forms the aim (often attained) should be to lengthen life. "Especially in the contracted form of kidney disease many years of life, much of the happiness which comes from achievement, days and nights of comfort," might hinge on our skill in adapting sound principles to the particular case and in securing the unwavering cooperation of the patient. Dietary restriction should be quantitative rather than qualitative; diet should be varied and not monotonous. Alcohol is not necessarily a poison and might be an aid to digestion. The excess of proteid, not proteid in itself, is harmful in chronic Bright's. Witherspoon has through a number of years been much impressed with the reparative and recuperative powers of the kidneys. Unfavorable diagnoses have indeed much too often been made; and not a few physicians have had the mortification to see their cases of Bright's which "would not live two years" confront them in very good health decades after the time confidently set for their demise. Hutchinson believed that any diet which diminished the amount of intoxication in the tissue's and built up the patient's strength was best fitted for cases of nephritis. Walsh directed attention to high tension pulse, accentuated second heart sound, fluttering sensations, referred to the heart and digestive disturbances, with relation to the diagnosis of nephritis. Fussell sensibly declared that the impression should not be advanced that the physician need not examine the urine at all in cases of suspected kidney disease; such examination should be made and considered in relation to all the other symptoms.

SURGICAL TUBERCULOSIS.

THE treatment of tubercular lesions other than pulmonary has of late years undergone a radical change—particularly with regard to the tubercular glands, "white swellings" of joints and the like, in children. No operation is now considered radical; it is recognized that a new nidus of infection will inevitably arise in some other part of the organism, if operation be not immediately re-inforced by dietetic and hygienic treatment, the latter being of a particularly revolutionary sort. Indeed, it has been made manifest in the French Hôpitals for tuberculous children, in the institution at Sea Breeze on Coney Island (which is modeled after these hospitals), by the work done in the Seaside Hospital of the St. John's Guild at New Dorp, and in many other institutions of a like nature, that children get well of their lesions without operation, and oftentimes with more permanent results. Relapses are extremely rare. At Sea Breeze, for instance, the windows are never closed, no matter how low the temperature, either day or night, except for a half hour morning and evening, when the children dress and undress. Yet colds, or sore throats, or pneumonias, or the acute infections common among children, are there practically unknown. And by this hygienic mode of treatment the disfiguring scars which follow the use of the knife, are oftentimes obviated. And it has been found also that when operation is inevitable, the healing is much more rapid than

was formerly the case with these torpid, sluggish lesions.

That the tuberculosis of children is generally non-pulmonary has recently been much emphasized. Freeman (*Medical News,* May 27, '05) recognizes two modes of infection—respiratory and alimentary; the comparative frequency of these two modes has not yet been definitely determined. We would emphasize here what appears to us to be the modern trend of thought with regard to inhalation tuberculosis—that the bacilli are generally not inhaled directly into the air-vesicles, but that the tonsils and the pharyngeal and bronchial lymph-glands first receive the infection, which is then carried by the lymph channels to the air-vesicles by way of the thoracic duct, the vena cava, the right heart, and finally the afferent pulmonary capillaries. And this we believe to be the true modus of inhalation tuberculosis.

Freeman points out that the tuberculosis of early life is most common during the first year, when children are on an exclusive milk diet. A great deal of milk contains tubercle bacilli; and bovine tubercle bacilli are undoubtedly pathogenic for the human animal. At the tender age referred to, the structure of the intestinal wall is extremely delicate, so that bacteria can pass through it even though it be uninjured. Inoculation experiments prove that the mesenteric lymph nodes may be tuberculous without the presence of any gross lesions in them. The tuberculosis of infancy is, indeed (unlike that of later life), an acute, widely disseminated, general disease, with moderate temperature and few symptoms and physical signs, unless the invasion of the meninges gives rise to symptoms. Cervical lymph nodes and lesions of the joints are rarely seen before the third year. The power to overcome a tuberculous infection that has spread from the lymphatics and invaded the organs does not seem to exist in infancy. And the best treatment, as we have noted, is dietetic and hygienic—milk as pure as can be had, Pasteurized wherever there is any question of the good quality; and fresh air and sunshine through all temperatures.

THE DANGERS OF ILLUMINATING GAS.

ILLUMINATING gas has become of very general use, especially among the poor. It is now not only the poor man's light, but it warms his home, and it cooks his food as well. It is, therefore, nearly cause for wonder that comparatively few deaths are attributable to the careless use of it. Formerly the danger was not so great, for it was "coal gas," and the characteristic odor was a danger signal. But the modern "water gas," which has so largely replaced it, with its larger content of carbon monoxide, and its comparative lack of odor, is far more dangerous. Leffmann (*Journal A. M. A.,* June 3) finds that carbolic acid and illuminating gas have replaced, in Philadelphia at least, the suicides and accidental poisonings, the arsenic and laudanum of the Civil War period. A very small percentage of carbon monoxide—less than one-half a grain to 100 c.c. of blood—can render useless its hæmoglobin; so that a sleeper can easily absorb a fatal amount of modern water gas without being aroused. Gas cooking stoves are used generally only in warm weather, when there is good, natural ventilation; but their burners are seldom furnished with a collar to regulate the air supply, and the combustion is therefore liable to be irregular, and deleterious gases are given out. There is often serious leakage from the tubing, unless the best material is used. The stopcock on the heater is especially objectionable, being the one most convenient to use; and when used the leakage through the tube can go on unchecked. Leffmann advises that the sale of inferior tubing be prevented; that there should be no stopcocks on heaters unless they are connected to house mains by metal pipes, with tight joints and such construction as will prevent the rubber tube, even when of the best quality, remaining in free connection with the house main when the gas is not lighted. Heaters should be so constructed as to give a large radiator effect with a given gas consumption; and they should be placed only where the products of combustion can escape freely from the chimney. All burners on the Bunsen principle should be provided with collars to regulate the air supply, and purchasers should be instructed in their use.

BY-PRODUCTS OF BEEF.

THE modern tendency to organize any given industry down to its minutest detail (whether for better or for worse, we will not here speculate) has been strikingly emphasized in the recent report of Commissioner Garfield concerning the Beef Industry. This document evidences an extraordinary economy practiced in the saving and utilization of every part of a slaughtered steer.

When this business first became established on a large scale independent plants grew up in its vicinity; and it was their function to handle the by-products collected from the packing houses. Thus were glue, fertilizer, soap, oil and tallow works separate from the slaughtering concerns. As the packing business became more concentrated in the hands of a few large companies; all these allied industries were taken over, with the result that various important economies were effected. For an example of the point of detail that has been reached, the Armour Company now manufactures sandpaper, thus utilizing its glue.

The hides are the most valuable by-product of beef, averaging about six dollars a head. Many classes and

grades are distinguished; they are salted and kept for from two to six months, according to the state of the market. The hides may thus shrink in weight as much as one-sixth of the "green" weight.

The fats, especially from the abdominal region, provide a large revenue. The better fats, which may be detached by cutting or pulling, are so largely destined to be used as a constituent of butterine that they are known as butter fats; an average beef animal will yield from sixty to seventy-five pounds of such fat. Oleo stock is first derived by heating from these fats. This is nearly of the same substance as ordinary prime tallow; and if the market for oleo products is much depressed, tallow may be produced for sale instead. Otherwise the stock is subjected to powerful pressure, which separates the oleo oil from the stearin, both of which are standard marketable products. Some packers use part of their oleo oil and stearin in manufacturing butterine, lard compounds and cooking oils.

The Commissioner rather naïvely reports that a moderate quantity of tallow and greese, of several grades, is secured by cooking the heads, feet and other offal, "but the quantity and value of fats of this character are much less than those of butter fats."

The tongue of a beef animal is a valuable by-product; it is sold either fresh, or more often cured or canned. All parts of cattle, except the dressed beef, hides, butter fats and tongues, are ordinarily designated as "offal"; in this term are included the liver, heart, sweet breads and tails, which may be marketed without other treatment than trimming. Other forms of offal require much more extensive preparation for satisfactory marketing. From the heads are cut the cheek meats and other small bits, and sometimes the lips; these are usually sent to the sausage department. Parts of the horns and big bones may be used in the manufacture of various novelties. The feet, the trimmed heads and various minor parts are transformed into tallow, glue, neatsfoot oil, and other products; the residue from these is used for fertilizer, as are also the blood and soft parts not containing other valuable material. A great variety of commercial fertilizers are made, including those in which phosphates and other mineral substances are combined with the animal products. The intestines are carefully cleansed and converted into casings for sausages. The weasand, or gullet, and the bladder are made into containers for various commodities; some weasands are used for packing snuff.

Fibromata in three sisters, all single, in age between thirty and forty years, are reported by Doran (*Brit. Med. Jour.*, Oct. 14, 1905), who did a hysterectomy in each case. The growths were of the same type, interstitial, subserous and submucous. In all the cervix was involved and displaced.

BIBLIOGRAPHICAL

Manual of Chemistry. A guide to lectures and laboratory for beginners in chemistry. A text-book specially adapted for students of medicine, pharmacy, and dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, and in the Baltimore College of Dental Surgery, etc. Eighth edition, thoroughly revised with sixty-six illustrations, one colored spectra plate and eight colored plates, representing sixty-four chemical reactions. Philadelphia and New York: Lea Brothers & Co. 1905. Pp. 643, octavo.

This standard text-book for students comes to us with the changes and additions of the new Pharmacopœia included, bringing the work absolutely up to date by thorough revision and re-writing.

The illustrations have been improved and increased. The book furnishes in concise form a clear presentation of the science, an intelligent discussion of those substances which are of interest, and a reliable guide to laboratory work. As an aid to laboratory work, a number of experiments have been added which may readily be performed by students with a comparatively small outfit of chemical apparatus.

The work will continue to be a leading text-book.

Operative Surgery.—For Students and Practitioners. By John J. McGrath, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School, Surgeon to the Harlem, Post-Graduate, and Columbus Hospitals, New York. Second edition, thoroughly revised. With 265 illustrations, including many full-page plates in colors and half-tone. 628 Royal octavo pages, extra cloth, $4.50, net; half-morocco, $5.50, net. Sold only by subscription. Philadelphia: F. A. Davis Company.

This excellent treatise appears in a second edition after having been carefully and thoroughly revised. Many instructive illustrations and much new and interesting descriptive matter have been added. In the section upon the abdomen the subjects of gastro-enterostomy and the surgical treatment of diseases of the stomach and intestines have been treated in minute detail.

The operative surgery of various other organs has also been described at length in the revision, greatly to the enhancement of the usefulness of the work.

The author has attempted in this volume to combine in a practical manner the subjects of surgical anatomy and operative surgery, because a knowledge of the one is essential to the proper study of the other.

A Manual of Surgical Diagnosis.—For Students and Practitioners. By Albert A. Berg, M.D., Adjunct Attending Surgeon to Mt. Sinai Hospital, New York. In one 12mo volume of 543 pages with 215 engravings and 21 full-page plates. Cloth, $3.25, net. Philadelphia and New York: Lea Brothers & Company.

The author by environment and experience is thoroughly competent to write such a work. The text is complete, precise and admirably adapted to the needs of the student and the practitioner. A concise clinical picture of each disease, including its cause, onset and course, and in certain cases the accompanying pathological changes are given. In each instance there is

indicated the points of difference between the disease under discussion and other diseases which might be mistaken for it. The author has endeavored to cover the whole subject concisely and in its most modern development.

A Manual of Pathogenic Micro-Organisms, including Bacteria and Protozoa.—For Students and Practitioners of Medicine and Surgery and Health Officers. By William Hallock Park, M.D., Professor of Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, and Director of the Research Laboratory of the Department of Health, New York. New (2d) edition, enlarged and thoroughly revised. In one octavo volume of 556 pages, with 165 engravings and 4 full-page plates in black and colors. Cloth, $3.75, net. Philadelphia and New York: Lea Brothers & Company.

In view of the fact that the two classes of pathogenic micro-organisms, bacteria and protozoa, are now recognized, it is essential that the student should be instructed in both fields, hence the inclusion of the two subjects in a single volume is advisable. The sections on bacteriology have been thoroughly revised and brought up to date; those upon the protozoa are entirely new so that the complete volume reflects the latest knowledge in its whole domain. Throughout this new edition, as in the previous one, the practical side of the subject is kept uppermost and the needs of the student, the practicising physician and surgeon as well as the health officer are kept constantly in mind.

Minor and Operative Surgery, including Bandaging. By Henry R. Wharton, M.D., Professor of Clinical Surgery in the Woman's College; Surgeon to the Presbyterian Hospital, Philadelphia, etc. New (6th) edition, enlarged and thoroughly revised. In one 12mo volume of 642 pages, with 532 illustrations. Cloth, $3.00, net. Philadelphia and New York: Lea Brothers & Company, 1905.

This work has for many years been the justly accepted authority in its field. In its many revisions its scope has been gradually broadened in response to the suggestions of its many readers, so that in the present edition it really covers all except what might be termed capital surgery. The increased attention which is given in the medical colleges to operative procedures on the cadaver and the importance of this method of instruction have led the author to include those operations which can be advantageously taught in this way. The various bandages and surgical dressings are clearly described, and illustrated by numerous engravings, many of which are photographic, and all of which are most helpful.

A Manual of Physical Diagnosis, including Diseases of the Thoracic and Abdominal Organs.—For Students and Physicians. By Egbert LeFevre, M.D., Professor of Clinical Medicine and Therapeutics in the University and Bellevue Hospital Medical College, Attending Physician to Bellevue Hospital and St. Luke's Hospital, New York. New (2d) edition, thoroughly revised and much enlarged. In one 12mo volume of 479 pages with 102 engravings and 6 full-page plates in black and colors. Cloth, $2.25, net. Philadelphia and New York: Lea Brothers & Co.

The second edition of this work has been thoroughly revised, some of the sections entirely rewritten, the series of illustrations enriched, and attention has been called to recent modifications in methods of examination. The scope of the work has been kept to its title, including the subjects of inspection, palpation, percussion and auscultation.

Noteworthy among the new features of this edition are the very complete revision of the chapter on topographical and relational anatomy and the new illustrations in this portion of the book—the new X-ray illustrations of the heart outlines and the new illustrations of cases of cardiac disease. The first edition of Dr. LeFevre's work was repeatedly commended as "the best manual procurable on its subject," but the present would seem to require even stronger recommendation.

A Text-Book of Medical Practice for Practitioners and Students.—Edited by William Bain, M.D., Durh., M.R.C.P. Lond. With illustrations. Large octavo, pp. 1011. London and New York: Longmans, Green & Co.

This unique classical work, written by sixteen authors, specially selected for their subjects, presents the salient facts of medical practice within the compass of a single volume. A new feature of the scheme is the inclusion of anatomy, histology and physiology, prefatory to the consideration of various groups of diseases. This innovation will recall to the student the importance of keeping normal conditions in mind. To emphasize further the relation of the abnormal to the normal, morbid anatomy and pathology are, in the description of individual diseases, placed before clinical symptoms. The final chapter deals broadly with the inter-relation of organs in disease.

In accordance with the general plan of the work, certain diseases, including pneumonia and acute rheumatism, are found in the sections dealing with the organ or region chiefly involved. The text is written in a fascinating style, which is easy to read and a pleasure to study. Our readers will find the book a delight.

Progressive Medicine.—A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart Amory Hare, M.D. and H. R. M. Landis, M.D. Vol. IV, December, 1905. Philadelphia and New York: Lea Brothers & Co.

In this volume the following subjects are considered: diseases of the digestive tract and allied organs; liver, pancreas, and peritoneum; anæsthetics, fractures, dislocations, amputations, surgery of the extremities and orthopedics; genito-urinary diseases; diseases of the kidneys; practical therapeutic referendum. All the matter is of the highest practical value to the busy practitioner, the article on therapeutics being well worth the price of the book. We cannot commend this work too highly.

Sexual Neurasthenia, Its Hygiene, Causes, Symptoms and Treatment, with a Chapter on Diet for the Nervous.—By George M. Beard, A.M., M.D., formerly lecturer on Nervous Diseases in the University of the City of New York, etc. Edited, with notes and additions, by A. D. Rockwell, A. M., M.D., Neurologist and Electro-Therapeutist to the Flushing Hospital, formerly Professor of Electro-Therapeutics in the N. Y. Post-Graduate Medical School and Hospital, etc. Sixth edition. With formulas. Pp. 316, 12mo. $2.00. New York: E. B. Treat & Co. 1905.

The demand for a sixth edition of this work shows

the esteem in which the profession holds it. The editor has taken this opportunity to direct attention to the symptom of incontinence of urine in its relation to neurasthenia, and to describe a method of treatment which has yielded remarkably good results in his experience. The treatment consists of the action of the isolated induction shock on the atonic perineal striated muscles and the external sphincter of the urethra, and a description of the technique is given as the main feature of the additional chapter.

Lectures on Auto-Intoxication in Disease; or, Self-Poisoning of the Individual.—By Ch. Bouchard, Professor of Pathology and Therapeutics; Member of the Academy of Medicine and Physician to the Hospitals, Paris. Translated, with a preface and new chapters added, by Thomas Oliver, M.A., M.D., F.R.C.P., Professor of Physiology, University of Durham; Physician to the Royal Infirmary, New Castle-upon-Tyne; formerly Examiner in Medicine, Royal College of Physicians, London. Second revised edition. Crown octavo, 342 pages, extra cloth. Price, $2.00, net. Philadelphia: F. A. Davis Co.

As putrefactive action in the intestinal canal and the development of physiological and pathological alkaloids play an important part in many disease processes of every-day interest, this volume, which deals practically with the subject of "Auto-Intoxication," cannot fail to be of interest and prove instructive to the general practitioner, who is constantly coming in contact with such conditions. There is also much that is valuable and suggestive from a therapeutical point of view. In this edition, the editor has interposed in the text, valuable matter in order to bring the subject to date.

Immunity in Infective Diseases. By Élie Metchnikoff, foreign member of the Royal Society of London, Professor at the Pasteur Institute, Paris. Translated from the French by Francis G. Binnie, of the Pathological Department, University of Cambridge. With 45 figures in the text. New York: The Macmillan Company. Pp. 591, octavo. Price, $5.25.

This volume sums up the efforts of twenty-five years of hard labor on its subject, by the distinguished author. The writer has attempted to give a general picture of the phenomena of immunity in the infective diseases, in order to clear away certain misunderstandings which he claims exist in respect to the subject. There is no one better equipped than the author to do this work, and it is now up to the opponents of the phagocytic theory to disprove his statements. The text will be found both interesting and fascinating, and no physician should fail to read the book regardless of personal belief or prejudice.

If one does not care to read the whole there is an excellent summary in the last chapter.

Vital Questions. By Henry Dwight Chapin, M.D. New York: Thomas Y. Crowell & Company. Pp. 200, 12mo, cloth, $1.00.

The author takes for consideration such subjects as "Poverty," "The Child," "Health," "Education" and "Success," discussing them in the plainest terms for the sole purpose of finding the underlying truth for his readers, professional or lay. A portion of some of the articles have appeared before in periodical literature. It is a suitable book to recommend to patients.

CORRESPONDENCE

DO MEDICAMENTS CURE?

To the Editor of THE MEDICAL TIMES:

Such a question as heads the present letter would to the vast majority of persons seem not only preposterous but superfluous. For whence proceed the great floods of medical literature; the thousand and one drugs already discovered, and those continually put upon the market in a never-ending stream, and burdening the repleted pages of the Pharmacopœia; the various so-called schools of medicine founded for the express purpose of proving the claims of special therapeutic methods? Add to this the six and more thousand medical practitioners graduated from the various medical institutions of the United States alone, not to speak of other countries; the numberless self-constituted physicians; the hosts of dabblers in physic and the venders in secret nostrums, as countless as the sands of the seashore. What of them? In the face of all this positive and emphatic testimony in favor of drugging, who will have the temerity to adduce a negative vote? Who dare meet this vast array of argument?

From the remotest antiquity the medical profession has been held in the highest regard. Honors of various kinds, wealth and renown have been lavished upon the good physician with unsparing hand. In the rich mythology of the Greeks we find Esculapius occupying an exalted position and, as the alleged son of Apollo, receiving the honors of a god; while his worship was continued to a later date among the Romans. In fact, the first medical schools in existence honored him by taking his name; for the medical schools of Cos, under the name of Asclepiadæ, were famous the world over. And even in our own day, the name of Esculapius is synonymous with that of a medical practitioner. Such influence has the early practice of medicine retained!

Nor has the medical profession undeserved this high tribute of praise and affection. For among its members it has numbered some of the noblest characters the world has ever seen. By their discoveries and achievements in their own and kindred sciences they have ameliorated the conditions of mankind to an unparalleled degree. The self-sacrifices of the physician in war, pestilence and other human miseries are without number, as the literature of all nations clearly evinces. His self-abnegation in moments, when the first impulse would be an impulse of self-preservation, needs no illustration here. The names of such physicians are legion: some whose names have been entered in the book of fame; some whose activities flowed in calmer channels and in a more humble sphere of life, but whose memories are enshrined in the hearts of a grateful posterity.

But despite of all his accumulated honors and emoluments, the profession of medicine has perhaps more than any other occupation, but too often been misunderstood, or at least, misjudged. Its true and prescribed functions have been the occasion of great misapprehension. When it seemed to work wonders, miracles were demanded. When it failed to satisfy the importunate longings of suffering humanity, it was put on a level with the veriest tyro. Hence, on the one hand, sprang up the most deplorable delusions and fanciful doctrines; on the other, the most unblushing effrontery and barefaced charlatanism. Confusion worse confused was the inevitable result; alternate affirmations and denials of

rival sectaries as to the superiority or inferiority of their respective systems. The nature and cure of a malady were dependent upon vague and occult principles, too subtile but for the initiated to comprehend; in short, such a farrago of nonsensical and mercenary doctrines, that, in the endeavor to choose the best, men were fain to select the most pretentious—and the worst. The whole legitimate profession received the odium of which they were entirely undeserving; and, as a matter of course, upon its shoulders was laid the whole ill success of the medical art.

There is something like a Gresham law, as active in the medical as in the financial world. When medical credit wanes, its true province, like good money, tends to disappear and leave nothing but a base substitute in its place. The old confidence in it is lost; business is done with a constantly fluctuating and depreciating currency. He who makes the best promises and the most, who gives the greatest credit with the most alleged beneficial intentions, is the one who, in panicky times, is to reap the largest harvest and win the votes of the community. The wrong cause is always the one to which the difficulty is ascribed.

Now when we consider the changes in the popular mind which are constantly taking place around us in regard to the true action of medicaments, we are naturally inclined to learn the reason for all such changes, if reason there is. Two questions in this connection not unnaturally arise. Does the medical profession justify its claims to the cure of disease and the preservation of the health? And, on the other hand, does the public demand impossibilities of its medical advisers? Or, again, are the physicians themselves holding out the boon of health for their own profit, by deluding humanity into the belief of the employment of drugs irrespective of their necessity and prosperity? Do the afflicted still imagine that the day of miracles is not over, and still look to the profession for their performance? Shall the profession be accused of unscrupulousness or the laity of ignorance and superstitution? Let us endeavor to explain some of this misunderstanding.

Much, if not all of the misunderstanding and heartburnings, produced by the discussion of a disputed question, might be avoided if the disputants did but agree upon the meaning of the terms to be employed in the proposed argument. Socrates, the father of moral philosophy, laid particular stress upon the definitions of words. According to him every argument hinged on the accepted significations of the verbal terms to be used. Thus were he discussing the subject of bravery or of cowardice with his pupils, he would first distinctly make known to them what he meant by the term bravery or cowardice, as the case might be. In this way he was the better prepared to enter upon the question as to what was meant by a brave man or a coward. When this was determined to his satisfaction he was ready to take up the discussion. If a similar precaution should be taken in the discussion of medical as well as of other matters, how much time, labor, misunderstanding and bitterness might be saved! Therefore, at the outset, we shall endeavor to define as explicitly as possible the meaning of the word which has been so often misunderstood and set all too often the laity and the medical profession at odds. For the great bone of contention appears to lie in signification of the word "cure."

Every nation almost, it would seem, has, fortunately or unfortunately, made contributions from the remotest antiquity to the English tongue, even forcing out of currency many old native, Anglo-Saxon words which lay at the foundation of the language. Hence we possess an abundance of words of both Greek and Latin origin, introduced directly from that source, or indirectly through French dilutions. In this way the language has lost many useful words of native growth beyond hope of redemption. Among such words may be noted "leach" and "leachcraft," very expressive but now obsolete. In their place we have a number of equivalents none of which convey the picturesque force of the first.

And first of Greek equivalents. This ancient language gives us "Physician," "Physic" (noun and verb); then "Chirurgeon," contracted to "Surgeon," with its derivatives, surgery, surgical, etc.; next "Apothecary," "Therapeutics," with its derivatives; "Pharmacy," and its derivatives and several other which need not detain us here. The original meaning of the first word was what we now understand as "physicist," or one who professes to teach "physics," which last term, in the singular number denotes medicine proper. The same thing, to some degree, may be instanced in the case of the word "Chirurgeon" before it was corrupted to "surgeon." Originally in the Greek it had no other meaning than that of "craftsman," or, more properly, "handcraftsman." It was not until the time of Celsus, in the first century of our era, that it received its modern designation. "Apothecary," "Therapeutics," and so on, are words which from the first had some connection with the preparation, sale, dispensing and administration of drugs for the treatment of disease, except the first. For "Apothecary," on the other hand, came down to us with a different signification from that first applied to the word, when introduced into the language. With us it is employed in its secondary meaning of the dispenser of drugs and medicines; while the English apply it to a general practitioner who dispenses his own medicines. In its last and third application the word has departed the widest from its original meaning. In its primary force it conveys no hint of its most extended use. For the original apothecary was only one who kept a shop (theca), and vended spices, nutmegs and other commodities as well as drugs; and down to the beginning of the seventeenth century he belonged to the Company of Pepperers, or Grocers.

From the Latin we have drawn our word "Doctor," as applied to the physician almost exclusively, which, in its original application, referred to one skilled or learned in the higher professions, particularly in law and theology. Thus the profession of medicine is not the only vocation to which this term may be applied as modern usage still shows. As ordinarily used the term has come to be thus applied only by association. Another word by a similar course of association and other causes has almost lost its primitive force. I refer to "Undertaker," which has been for nearly two centuries restricted to a manager or conductor of a funeral. In its primary sense it denoted the promoter, manager, exploiter of any kind of business—the French "Entrepreneur." Thus "doctor," in its popular employment, has been entirely divorced from its original meaning; and we even have coined a verb from it, "to doctor,"—and "doctoring," also.

We now come to a class of words which have brought over with them into the language something of their

primary signification. From the root of the Latin word "to heal" (*mederi*), have been formed a variety of other terms, both in Latin and their English adoptions, all of which relate to the healing art (*leachcraft*). Such are "medical," "medicine," "medicament," etc.; "remedy," "remedial," etc. Our language, however, has not adopted the derivative which particularly relates to the practitioner of the healing art, namely, "medicus," though the Latin races have done so. The abbreviations appended to a medical degree, namely, "M.D.," are pure Latin, and only used to designate a physician in a somewhat undignified manner.

The French in this particular are peculiarly fortunate. Their tongue being an offshoot of the Romanic language (Lingua Romana) the body and soul of its speech is consequently of Latin origin. Most of the terms relating to the medical profession have come to them from the mother tongue, the prevailing language of the Roman Empire. And among these words may be mentioned "cure," susceptible of two meanings, primary and secondary. In its original application it denoted the charge or care of anything, whether in a theological, medical or ordinary sense. In the first two senses it is used in France; chiefly in the second meaning in England; and only in its second application with us. But through all its meanings the notion of care, attention and general superintendence runs; not the strict use of remedial drugs. In "Curate," we note one who has under his charge the care (*cura*), or the "cure" of souls; a spiritual supervision over parishioners. In its application to the treatment of disease the physician becomes one who has under his charge persons whose health needs restoration not necessarily by means of drugs—a secondary consideration. It is this misapprehension of the word which has caused ite confusion with merely medical treatment by means of drugs. This is the popular interpretation of the word; and a physician is expected to perform a miracle virtually by means of certain remedies used in a certain way, the more mysterious the better. In the case of surgery and in a limited number of maladies there is some certain connection between the application of the remedy and the recovery of the diseased. The number of specific remedies are in actual use so small that they may be thrown out of the discussion altogether. The best class of such medicines are known as antidotes to poisons; and even those are limited in number.

On leaving the domain of surgery and that of the few well-recognized *"post-hoc"* remedies, so to speak, our troubles begin. The word "cure" is tortured far beyond its capabilities, and made to play a rôle as little comporting with its first meaning as possible. The double application of this word is extremely unfortunate on account of the part it has been made to play in the domain of medicine where the nicest exactness in the use of language is so much needed. Though a certain degree of care is always necessary in the treatment of a malady, it does not follow for that reason that all diseases are amenable to direct medication. Such a result might not be possible. It is this miraculous element, so to speak, connected by the popular mind with the treatment of disorders which it is not our purpose to consider in the present paper, but to consider upon what depend the true duties of a physician apart from this gratuitous attribution to him of miraculous powers.

In his history of medicine, when discussing the several methods used in the treatment of disease, therapeutic and otherwise, Renouard divides them into three classes, as follows: first, the synthetic specific or curative method proper; the analytic or symptomatic; and lastly, the inactive or expectant—the French *laisser-faire.*

According to the first method it is the aim of the physician, if he can, to cut short the malady by medical interference—the aim of the leach from time immemorial. The search for the elixir of life is coeval with that after the philosopher's stone. To obtain some infallible remedy for a given malady has been the object of pursuit from the dawn of civilization. And it is this which the layman always demands from his physician; and "dosing" constitutes the course of treatment that he expects without fail from his medical adviser. The accommodating physician cudgels his brains for specifics which are slow in responding. It is this insatiable thirst after specifics which constitutes the bane of the practice, and keeps ever full the ranks of charlatanism.

The second method merely appertains to the grouping of the symptoms of a disease, and treating each one separately in the same manner as was noted above, with the same hope of success by medication.

The third method of treatment carries with it the acknowledgement of the self-limitation of all, or almost all kinds of maladies. The only hope and province of the physician here is to allay disagreeable symptoms, interfere as little as possible with the general run of the disease; he acts as the assistant of Nature, and follows her in the minutest manner. So far as drugs are concerned, they are more of a detriment than an advantage except to tide over bad symptoms. This method for this reason has been defined as the expectant.

The treatment of disease having resolved itself into the curative and the palliative, physicians of the intelligent class have at various periods disclaimed the overweening confidence of the great majority of persons in the curative properties of drugs, and have inclined to the former of these methods. One of the most eminent of these medical sceptics was Magendie, a distinguished French physician to whom the world owes a deep debt of gratitude for his additions to medical science. It has been related of him that, in order to prove the universal credibility placed in the curability of drugs, he tried the following interesting experiment. He divided his hospital cases into three classes. To the first class he administered the customary remedies; to the second merely colored water under the pretense that it contained medicine; to the third no medicament whatsoever. As the result of this experiment he found that those who had taken no medicine did the best of all; but the ones who had taken the colored water under the delusion that it was medicine, were the most satisfied in that they thought that they were using some sort of drug; such is the superstition of the generality of mankind. The third class of patients recovered as rapidly as the second; but they grumbled during the whole course of the experiment because they had not been given any kind of medicine. They recovered, so to speak, but grudgingly.

The late Dr. Edward H. Clarke, of Boston, Professor of Materia Medica in Harvard University, while lecturing to his class once remarked, that he had tabulated 105 cases of typhoid fever, giving them the usual remedies; but, that had he not done so, he honestly be-

lieved they would have all recovered *without administering to them a particle of medicine.* And the genial Dr. Holmes was also an advocate of the administration of less drugs. The story is perhaps familiar to all, but will nevertheless bear repetition, how on one occasion he facetiously observed that if all the medicine were cast into the sea it would be good for man but bad for the fishes.

Now such views, coming from men who enjoyed so much distinction in their profession, are worthy the greatest respect. Dr. Holmes also ventured the prophecy that the time would come when all the medicine required by a practitioner would be carried in the vest pocket. And in a medical periodical of very recent issue it was stated that, if the medical profession but well understood their therapeutic virtues, but sixty medicaments would be needed to meet the case of any disease which usually presents itself to the physician. But neither Dr. Clarke nor Dr. Holmes wished to throw any disparagement upon the value of drugs in their proper place, and when in skilful hands. But their arguments as well as those of others were used to discourage the indiscriminate employment of remedies on all occasions, and then just for the sake of having something to take for but trifling symptoms. Such practitioners had no sympathy with this superstitious dependence upon everlasting dosing and dosing, a practice which some medical sectaries seem to encourage.

A good many years ago when but just entered upon my practice, I made a thorough investigation into this subject of the true province of medication and sent the results of my researches to an appreciative editor of a medical periodical. I had consulted all the Pharmacopœias and Dispensatories published in England during the eighteenth century, and compared them with similar works issued in this country down to the year 1870. In the earliest works examined, the given remedies were of course crude and inattractive in more ways than one. It is unnecessary to repeat my researches here. Suffice it to say that the greatest stress in these pharmaceutical works was placed on the certainty of the action of the remedies there described for the given maladies. The confidence there expressed in such drugs is particularly refreshing to our more sceptical age. Add to this the abundance of nauseous remedies derived from the animal kingdom the mention of any of which is not within the scope of the present article. And so it went on from decade to decade with every new issue, of the official organ, containing the officinal preparations in general use, removing or adding one here and there, modifying methods of preparation until those very remedies, whose powers for the cure of disease were so much lauded once by the highest authorities find no place whatever, or are passed by with but a slurring notice. Just as old claims to their virtues were overturned and new ones set up, so doubt began to creep in, and remedies received but a tentative admission. The fact, however, was patent, that the character and preparation of drugs had greatly improved from time to time, if not their curability.

After thus demonstrating to my satisfaction this general improvement in the general tone of medication, as it were, as advocated by medical authorities, I next turned my attention to an inquiry into the number, variety and character of the medicaments then in actual use by the physicians in my own city. For this purpose I analyzed 1,000 consecutive prescriptions taken from the books of a prominent pharmacist, as now denominated, all these dating from the years 1845 and 1846. I made a careful analysis of the several remedies composing these prescriptions. Then I examined 500 other prescriptions taken from another prominent druggist, but dating in this case thirty years later (1875). The remedies prescribed in the latter I arranged in the same manner as I had the other group. Lastly I made a comparison between these two sets of prescriptions, and found a marked improvement in the character of the remedies used in the prescriptions of 1845 and 1875. There had been a gradual elimination of objectionable and inert remedies, a greater simplification in prescribing and much smaller doses of the active ingredients. For from forty to fifty per cent. of all these later prescriptions consisted of vehicles or menstruums to make the drugs more accceptable to the stomach, and not for remedial effect. The actual list of medicines used was exceedingly small.

Now, if we take another leap of thirty years we find a growing tendency to medical scepticism even among the laity. The present medicines are altogether too palatable to be denominated medicines. The very children cry for them as for sugar-plums. But, jesting aside, medicaments have reduced themselves to two classes. The vast majority in demand are those which tend to allay the over-stimulation and excitement induced by the mad rush for gain under the name of "analgesics" or "hypnotics," to relieve insomnia and cure dyspepsia. The treatment of disease is thus reduced to the treatment of symptoms, not of disease proper. The principal or rather popular medication is stimulation and counter-stimulation. The actual benefit from these drugs is but small in spite of the constant introduction of new synthetic products, and the multitude of proprietary remedies, each one claiming a superior therapeutic action over the other, and pushed into the market with wonderful pertinacity. But examination of any prominent pharmacist's prescription book will but demonstrate beyond a doubt the evanescence of this great stream of new remedies.

And this brings us to the last point which it is our purpose now to consider, and one which, in the time of Renouard, was given but little prominence. I allude to the subject of Preventive Medicine which has only received much attention within the last twenty years or so. To find some way by which a disease shall be prevented from declaring itself, seems a more satisfactory and sensible mode to pursue than to grope forever in the dark for a remedy which, in nine cases out of ten, is never forthcoming. There being no relation between the disease and the remedy to be employed for it, the value of every such remedy is only known on trial. But in the case of the prevention of an ailment we have a tangible object in view, so to speak, to grapple with; the disease is before us to study in every phase of it; and, when the laws upon which that affection depends are understood, its prevention is certain,—a far better practice than everlasting dosing.

The rise of preventive medicine is traceable to the rude methods adopted in the Middle Ages to ward off the spread of pestilence by the sequestration of the sick from the well by what is known as Quarantining. This method of preventing the spread of pestilences was acted on with more and more intelligence as time went on. This is the origin of preventive medicine. The modern study of bacteriology is an investigation into

the causes of diseases with the view to their prevention, not of cures—a hopeless task as time has fully demonstrated.

The physician has been frequently reproached with his failure in the direct cure of disease, and his consequent recourse to preventive medicine, to hide the weakness, it is supposed, of his profession and continue for profit a practice in which he has lost confidence. This is especially true of certain sectaries in medicine who claim for their systems a superiority over old, well-established methods of treating ailments. But, at the same time, the very reproaches which they cast on others, they are no less open to. They have the same per cent. of failures, and also accept with all due thankfulness whatever light is thrown out by preventive medicine, irrespective of any professed dogma.

The search after specific remedies, though in some degree still the attraction of the medical profession, yet for all that preventive medicine is constantly gaining ground despite the hunt for special remedies for particular diseases. As the search for such remedies becomes more intelligent less emphasis will be placed upon the idea of the cure, but on the principles of the prevention of disease. The chase after the Elixir of Life will grow less and less persistent; and the preservation of health the chief care of the physician. Vis Medicatrix Naturæ, says the old adage.

F. C. CLARK, M.D.

Providence, R. I., Nov. 22, 1905.

NEW TREATMENT OF TETANUS.

To the Editor of THE MEDICAL TIMES:

Having been successful in the treatment of tetanus I wish to make it known as follows; Let the patient be rubbed all over from the crown of his head to the soles of his feet with the strongest sulphur ointment, made with lanoline, to be repeated as absorbed. Internally take every two hours four grams of sulphur sublimatum in honey, beginning with 15 grams if his bowels are constipated. Stimulants in large doses. I would feel obliged if you would have my remedy tried and reported. I remain, Yours faithfully,

JASPER CREAGH, M.D.,
University of Michigan.

Pilar F. C. P., Province de Buenos Aire, S. A., Oct. 8, 1905.

The Ship Master's Medical Help (London, Chas. Griffin & Co.) is an excellent book of 350 pages, appropriate not only for ship-masters, but for young ship-surgeons as well. It is an invaluable résumé of all the medicine and surgery that one is likely to require for ship practice. It is practically a first aid manual, and as such should attract also the layman. There are, in addition to a clear account of various diseases and injuries met with on shipboard, chapters on the preservation of health, the general treatment of the sick, the contents of the medical chest and the use and indications of the clinical thermometer. A brief but very practical account of human anatomy and physiology is given. There is an alphabetical description of the various drugs and their uses. There are many useful tables and excellent prescriptions.

RETROSPECTIVE THERAPEUTICS

The Color of the Hair.—The drawbacks in the way of observation and classification of the color of the hair, including artificial as well as normal changes, were pointed out by Dr. Beddoe in the annual Huxley memorial lecture, the subject being "Color and Race." Such difficulty is fairly well indicated in the following: "Which do you think are the more amiable, blonde or brunette women?" asked a fair-haired member of the best of sexes. "You ought to know," was the astute answer; "you have been both." Despite such difficulties as this, Beddoe has been able to offer some distinctly scientific observations. Red used to be the prevailing color of the hair in parts of Central Europe, but it is now a grayish brown. Red was the natural color of man's hair in this region, at any rate in the uncivilized state; the brown pigment came later. The graying process, in our opinion, has surely been a result of the change from the comparatively animal existence of former ages to the intellectual, strenuous, "civilizing" tendencies of modern life. Japanese, Chinese and Egyptian children often had reddish or fair hair; but now there are no fair adults among these peoples. The phenomena observed in the British Isles are accounted for by the intrusions of light-complexioned races from the North and East, the earliest inhabitants having been more usually dark.

With regard to the supposed connection between color and temperament, Beddoe gives a general support to the ancient doctrine, noting the preponderance of dark hair and brown eyes among criminals. He regrets—as who does not?—the suppression of the old blond lympho-sanguine stock by the darker and more mobile type, "largely the offspring of the proletariat and more adapted to the atmosphere of great cities."

Baldness.—We recall a paper on this subject which began in rather a diverting way. It was read in one of those gatherings in which the social element equals and sometimes transcends the scientific, in which the papers of the evening have too often to divide attention with the supper and the subsequent smoke and chat—gatherings which can hardly be called medical meetings, clubs of medical men rather than medical societies, in which one sets forth his views without restraint and in which one is likely to be "pounded" with at least equal freedom. "Hope," began the genial physician, "is generally represented as a maiden clinging convulsively to the Rock of Ages. I think, however, that a much more appropriate representation would be that of a bald-headed patient rubbing vigorously into his scalp the remedy prescribed by a bald-headed specialist in skin diseases." A dissertation on baldness seems from time to time to be expected of every journal of the first order; wherefore we now set forth some sapient observations relevant to this melancholy affliction. If the scalp be not loose upon the cranium, but, on the other hand, bound down and adherent, then there is little hope of capillary restoration; if on the other hand, it can be freely moved about by the fingers much should be hoped for in the way of treatment. Premature alopecia is usually of he latter sort; and one may sometimes be surprised to see a friend after a separation of a term of years with a good "head of hair," where previously there had been none. With advancing years the likelihood of successful treatment of course diminishes. Baldness is sometimes, perhaps generally, of

parasitic origin. In some cases, premature baldness can easily be demonstrated as a hereditary trait. Oftentimes baldness is a symptom of an "under-tone" condition of the organism. Demonstrably this is so after profound shock or fright, or acute and debilitating diseases, as typhoid; such loss of hair being generally but temporary. Oftentimes alopecia is a sequel of chronic shock, or great nervous or psychic strain, or great physical exhaustion enduring through months, or years. Obviously then all the possible causes of alopecia must be inquired into; and successful treatment may depend upon care of the entire constitution of the individual. The patient may accomplish much if he practice constantly the hygiene of the hair and scalp, just as he does any other part of the toilet; such hygiene is most succinctly set forth in Dr. G. T. Jackson's invaluable Handbook of Skin Diseases. The vigorous and conscientious use of two very stiff military brushes and of a comb not too sharp in its teeth, of daily massage of the scalp by means of the finger-tips and *very infrequent* (perhaps fortnightly or even monthly) shampooing, the oiling of the scalp from time to time if the hair be dry and brittle, having the hair cut not oftener than every three weeks by a barber who knows how to use sharp scissors and will cut the hair clean without fraying its ends—these are essentials in the preservation of the hair. With regard to local applications, as a general statement watery preparations are to be eschewed and oily ones preferred. Alopecia may be of syphilitic origin; here specific remedies may prove effective. Otherwise it is usually the result of lack of secretion in the glands of the skin and the drying of the scalp and consequent capillary impoverishment. For such condition as this the oily preparations provide nourishment. And with these may be incorporated a small amount of resorcin or other antiseptic, to combat the possible activity of parasites. Very trustworthy authorities praise the restorative powers of pilocarpin, which drug may be incorporated. (In prescribing remember that its cost averages twenty cents a grain.) Singeing of the hair will neither promote its growth nor retard its decay; it is a measure really detrimental to the good condition of the hair. There are those who for a price will massage one's scalp and anoint it in accordance with the physician's directions; their offices should be very beneficial. If with all these means the hair steadily and progressively thins out, and if the sufferer be very anxious indeed on this point, he had best, if he be an urbanite, give up the strenuous life of cities ('tis not so great a sacrifice after all) and take to farming and rustic repose. Or if he be a philosopher (most bald-headed men are—they come to that eventually), let him be content it is no worse, and be thankful for the pleasures, perhaps conducive to baldness, that have in other years been his.

Diphtheria of Wounds.—Balderi (*Gaz. Med. di Roma*) relates three operative orthopedic cases in which the incised surfaces became infected with diphtheria. The wounds being opened on account of rise of temperature and tumefaction, their surfaces were found to be covered with a grayish-white membrane, cultures from which showed Klebes-Loeffler bacilli. Antidiphtheritic serum caused this membrane to disappear and the children recovered. Balderi concludes that: sterilization of all materials used in dressing wounds is of the utmost importance. Hospital gangrene is produced by the Loeffler bacillus combined with the pyogenes communis. In every case of hospital gangrene Behring's serum should be used at once and repeated until cure results.

The Trustees of Bellevue and Allied Hospitals have issued a report for the first quarter of the last year. Nearly ten thousand patients were admitted, of whom Bellevue alone received more than 7,000. In the psychopathic wards of Bellevue more than six hundred patients were received. The only somnambulist recorded among these was a woman. Singularly, the records of acute alcoholism showed seven women victims as against six men. In March, the organism of the new pathological department was completed, provision being thus made for scientific work of a kind recognized and provided for in the best hospitals in the world. The total amount of the vouchers sent to the Finance Department for the quarter was $110,000. Salaries accounted for $51,000 of this and supplies for an equal sum. The appropriations for the year were $615,000, and the itemized record of expenditures indicates that the trustees kept well within bounds. This should impress the citizen as an exceedingly small amount, considering that the city's annual budget for all its expenses is some one hundred and twelve millions of dollars.

Bellevue and allied hospitals, states the *Sun*, in a graceful encomium, have been taken out of politics. Their work is now performed in a manner more satisfactory to the public than ever before. The latter hears fully and promptly of the mistakes made in them and the errors of judgment that employees make. "Of the thousands of cases in which the doctors, nurses and attendants work with trained skill, scientifically and zealously, nothing is heard, for these are the commonplace routine of the hospitals. It is a comforting fact that many experienced physicians and nurses in New York would rather be patients in Bellevue Hospital than in most of the private institutions of the city.

The treatment of chancre and chancroid is detailed by D. E. Wheeler (*Am. Med.*, Aug. 19, '05), who would apply simple mechanical cleanliness, the frequency of the washing depending upon the intensity of the infection and the amount of the discharge. Mercurial solutions are slightly preferable to others probably because they form with the discharges an insoluble albuminate of mercury. Iodoform is objectionable on account of the disagreeable and compromising odor, and should be reserved for the most severe forms of infection. Deformities of the foreskin forming mechanical obstruction should be relieved at once, but operations for cosmetic effect should not be performed in the presence of infected ulcers. [Intelligent treatment requires a careful differentiation between the chancre and the chancroid; this the books supply. The treatment outlined by Wheeler is very appropriate for the chancre, which should merely be kept clean. The chancroid is apt to spread and may become phagadenic. Wherefore this lesion must be touched daily or every other day with pure carbolic acid. For a lotion nothing better has been invented than the black wash (Lotio Nigra of the Pharmacopœia—a mixture of lime water and calomel), used hot if possible. The prepuce must be drawn far back at every cleaning so that the whole surface including the corona glandis will be brought into view. Applications of hot lotion may reduce a phimosis; if they will not, it is essential to slit the prepuce—*not along the dorsal surface,* but later-

ally, on both sides according to Dr. Robert Taylor's method. This can be done under cocaine.]

Asthma has no distinctive pathology, states Kohn (*Med. Rec.*, Aug. 26, '05), who believes that the essential cause of the disease is probably some organic lesion of the nerve centres of the medulla, though this has not yet been demonstrated. Peripheral or central irritations in certain individuals of a neurotic temperament directed to the underlying cause in the brain, pnœa which is *sui generis*—unlike the dyspnœa of destructive lung tissue, or of cardiac or uræmic types. The former is well defined and unmistakable in the sudden onset of the paroxysm, its seeming gravity, and in the comparatively rapid return to a normal condition. Asthma would thus seem to be a disease rather than a symptom. Kohn has been able to find the record of only three autopsies on asthmatics; in none of these was anything characteristic found. No change in the nerve centres has been discovered to which the disease can be positively attributed. Probably there is a molecular change in the nerve centres a periodic disturbance in their vascular supply; and no doubt the asthmatic attack is the culmination of a series of irritations transmitted to the nerve centres, which finally result in the explosion which, in this, case, is the asthmatic paroxysm. Kohn has had most marked success with potassium iodide. Operative work is not of universal utility, in his opinion; there must be internal treatment produce a characteristic, distressing, periodic dysrespiratory and vaso-motor centres.

Jack (*Buffalo Med. Jour.*, Aug., '05) believes the prognosis in uncomplicated asthma to be positively good. Two or three years of constant supervision by the physician may however be required. Physiologic measures should be substituted for drugs when possible. Blood showing an excess of lymphocytes indicates the withholding of lymphogenous foods, as milk and raw oysters. Blood giving a pronounced iodophilia indicates a withhold of starches; a lack of fibrinous elements in this fluid is an indication for the giving of gelatin. Proteids or meats are to be withheld when there are toxic cadaveric stools. A restricted diet is essential when the urine contains indican. (We would suggest the trial of adrenalin chloride in asthma.)

The Cyto-diagnosis of Pleural and Cerebro-spinal fluids is detailed by Turton (*Practitioner*, April, '05). In *pleural effusions* the formulæ stated by Widal and Savant hold good for most cases. An excess of lymphocytes generally indicates a tubercular origin; a preponderance of polymorpho-nuclear cells an inflammatory process, due, perhaps, to a pneumococcal or streptococcal infection. A passive or mechanical transudation generally contains a large number of endothelial cells. In the earlier stages of tubercular effusions there are often departures from the rule. The cerebrospinal fluid in meningitis of tubercular origin usually shows lymphocytosis; in inflammatory states caused by the meningococcus of Weichselbaum, the pneumococcus or streptococcus are also present. Posterior basic meningitis is characterized by an excess of polymorpho-nuclear cells. Discordant results may be due to a secondary inflection. One may differentiate the various kinds of meningitis; and may also distinguish this disease from the cerebral irritation of typhoid fever and other infectious diseases, from tetanus and hysterical pseudo-meningitis, in which there is no increase of cells in the fluid. Lymphocytosis is almost constantly present in general paresis of the insane, in tabes dorsalis and in syphilitic disease generally of the central nervous system. Paresis and tabes may thus be diagnosed even in early stages. Diagnosis should not be based solely on cytological examination; but the latter should form a valuable link in a chain of evidence. One should make more than one count whenever possible.

The Prevention of Apoplexy is the title of an important paper by Allbutt (*Bristol Medico-Chirurgical Jour.*, March, 1905). In many cases of sanguineous apoplexy, the kidneys are not granular. Some of these cases may present fibrous changes in the kidneys, which are not, however, such as characterize Bright's disease. Allbutt is inclined to rule out the "Brightian class" of kidney lesion, with relation to apoplexy. Why, he asks, have the arteries burst in apoplexy when the kidneys are healthy? The arteries may be the seat of atheromatous or sclerotic change; but, although diseased, they have not silted up, as in cases of Bright's disease, but have burst. Arteries give way, not only to the mean pressure of age but further to the mean pressure of a reluctant peripheral circulation; they give way in consequence of the accumulation of "obscure stresses," which might be averted, if we knew how. The obstruction must be due either to a narrowing of the calibre of the arteries or stream bed over a very extensive area, or to an increased friction of the blood itself. If, states Allbutt, we are in the dark as regards the mechanism of persistent rise of the arterial tension, there is fortunately less doubt as to the treatment of the condition. A patient can be saved from apoplexy only by long anticipation. A tendency to hypertension runs in families; hence vigilance must be exerted with regard to members of such families. However, this condition is much more underspread than this. It may be met with even in children and young people. In them the arteries may be thickened, but rather in the muscular coats than in the intima; and this hypertrophy may disappear just as does a cardiac hypertrophy when exceptional strain has been removed. Arterio-sclerosis as distinguished from the sclerotic decay of senile involution is not the cause, but the result, of rising arterial pressure. Hence prevention lies in detecting a special tendency to a persistent mean rise of pressure. Occasional rises occur in all people, but they disappear before they do damage. The rise may be persistent and very marked, but if recognized early, this tendency may be reduced and kept down. Wherefore, every adult of forty and upward should have his blood-pressures measured, say every five years, up to sixty, when, if there is no great increase of pressure, apoplexy need not be feared. In some cases of rising tension without Bright's disease, arterial spasm is manifest, but in perhaps the majority of such cases it is not. In some the "large, lax and leathery" artery is present, in others the "wiry" vessel. The first kind may be regarded as arterial tension, the effects of tension being very manifest in the consequent tortuosity of the vessels. In the walls of the wiry vessels this stretching effect is less marked, but this condition is far more difficult to reduce. There is, however, no difference in treatment between the leathery and the wiry groups; yet the latter is far less submissive to deobstruent treatment than the former. Neither does Allbutt treat burly, red-faced patients differently from the spare and pallid. He finds pallor and wiry vessels to be more frequent among the sedentary. Over-

eating must be avoided, where there is persistent rise of mean pressures the mode of life must be revised. Regulated exercise, abstinence from alcohol and a great reduction in food are all necessary. Certain spas—Herromgate, Carlsbad and Marienbad, may be visited if possible. Different people respond variously to treatment. In some reduction is difficult; in others a couple of seasons at a bath, with restricted diet and regulated exercise, will obviate danger, at least, for a time; in others, despite all treatment, the rise of pressure, although set back, returns again and again. In these latter cases apoplexy is pretty certain to occur in the end. The systematic bloodletting of former times was a rough-and-ready mode of treatment of morbid rise in blood pressure. Vasodilator treatment is unsatisfactory; it is the *cause* of the abnormal rise of pressure that requires to be treated. But vasodilators may be of use at certain moments. On the occurrence of a slight apoplexy, all these measures must be carried out with greater vigor. The importance of determining the blood pressure in middle-aged persons is emphasized. Instruments should be used; even the most cultivated touch cannot be trusted. One may thus detect the first stages of that process which finally ends in apoplexy.

Pure Phenol in furuncle and tuberculous skin lesions is advised by Vörner (*La Sem. Medic.*, Oct. 25, 1905), who simply touches the centre of a small boil with phenol made liquid with alcohol or perhaps a little water. In large boils or carbuncles the skin is punctured repeatedly with a needle charged with phenic acid, which is carried as deeply as possible into the pores, unless the skin is broken, when the medicament is applied directly. Often one application is sufficient to cure, in other cases daily treatments are given for a week, depending upon the extent of the lesion. (We should ourselves not wait so long without recourse to other measures.) The alcoholic solution of phenol was also found very effective in hastening the cure of skin scrofula, especially when associated with deep lesions of the lymphatic gland or periosteum.

A work on the Pathology of Clothes is promised by a contributor to *St. George's Hospital Gazette*. The prospectus alleges that the treatment of diseases and accidents of the toilet will be considered. Among the lesions described, states the *Medical News*, are "perforating ulcer of the sock; false passages of the vest; hairy mole of the shirt-cuff; idiopathic atrophy of the pajamas; sloughing of the posterior foramen of the collar band, and prolapsus trouseri." A chapter is to be devoted to "Addison's disease of the shirt-front, madura pump, and inoperable volvulus of the necktie." The following is the causation of false passage of the vest: "The head, being hurriedly thrust into the garment, lacerates the fabric and emerges through the posterior wall of the axilla instead of through the cervical canal."

Cervical Rupture by means of a Dilator.—The dilating forceps are a peculiarly American institution. Continental operators, as a rule, eschew them, because of the danger attending their use. Careful and deliberate manipulation of them is usually unattended with danger. But forcible dilatation by a physician in a hurry may rupture a rigid cervix. Sometimes the tear will not be extensive, and can be remedied. However, it is not pleasant to have this mishap upon one's conscience, especially as, years after the event, another practitioner may during an examination express to the perhaps nulliparous patient his wonder how the cervical tear came about. Again, much more serious results may obtain, as in the case related by Boldt (*Am. Jour. Obst.*, April, 1905) of a woman twenty-seven years old, who had been married eight years and had borne three children. Having become pregnant a fourth time she miscarried, at a period not stated. Hemorrhage having continued for forty-eight hours after the expulsion of the ovum, the physician purposing to curette, began with the use of a dilator, upon which the structures at once gave way; a very profuse hemorrhage occurred, followed by collapse. On passing the fingers into the rent, he entered the peritoneal cavity and felt intestines. The tear was plugged with a strip of iodoform gauze, and nothing further was done until Boldt saw the case five hours later. She had then partially recovered from the collapse and complained of intense abdominal pain, vomiting and much thirst. The distended abdomen with rapid pulse of poor quality indicated a beginning peritonitis. Upon laparotomy a large quantity of fluid and clotted blood was found in the abdominal cavity. On the right side of the pelvis a laceration was discovered which involved the whole length of the cervix, and extended a short distance above the level of the internal os. The broad ligament was perforated by an extensive tear through its posterior reflection. The peritoneum had been stripped off the anterior aspect of the uterus, and a large hæmatoma had formed in this situation. As the hemorrhage had apparently ceased it was decided to adopt a conservative plan of treatment. "Most of the blood having been cleared out, the pelvis on the side of the tear was packed with sterile gauze, in such a way as to compress the vessels and at the same time cut off the uterine cavity so as to prevent infection by contamination." The abdomen was then closed, and the end of the strip of gauze brought out at the lower angle of the wound. Death ensued two days later.

Local Anaesthesia in the Radical Cure of Inguinal Hernia is advocated by Bodine (*Med. Rec.*, Oct. 21, 1905), who has operated by this means on 284 patients with 300 hernias, without a death or a suppurating wound. By means of Schleich's infiltration the amount of cocaine used is reduced to a minimum and limited to a small area, producing acute local anemia, effectually retaining the fluid in one spot. Pain is abolished in a sensory nerve trunk by cocainization, thus making possible an operation in the region supplied by it. The area here is superficial and the region restricted by the anatomy of the parts. In strangulated hernia local anæsthesia does not increase the shock, which may be the case with general anæsthesia. By the former method hot towels may be applied for some time to a possibly gangrenous intestine, in order to determine whether it will react. The operation does not give rise to the danger of injury to the nerve fibres or of injury to deep sutures from vomiting. There is no danger of cocaine poisoning, but one-half grain of the drug being used intermittently throughout an hour. Morphine, after operation, may be given in possible cases of cocaine poisoning. There is no occasion for haste; the patient evinces no pain during the operation. The solution of cocaine used (freshly made) is one-fifth of one per cent. for infiltration of skin and nerve trunks, and half this strength for subdermal infiltration. The line of skin incision should be infil-

trated throughout its extent tightly enough to maintain the local anæsthesia for an hour. The aponeurosis of the external oblique requires no infiltration; it should be incised over the situation of the underlying ring. The ilio-inguinal narve will be exposed by retracting the flaps, and its trunk is then cocainized by a few drops of the solution. The incision may be carried painlessly into the external ring, and the flaps reflected to expose Poupart's ligament and the conjoined tendon. The ilio-hypogastric, if found, may now be cocainized. The margins of the internal ring are infiltrated. A line along the long axis of hernial protrusion permits a clear cut throughout the hernial sac and coverings. The neck of the sac is infiltrated, dissected away from the underlying cord, ligated, and amputated. The genitocrural nerve is cocainized, the sac is dissected away from the cord and the operation is completed. Operations on the female are easier than those on the male.

American Ginseng, declares *American Medicine,* has a certain demand, but brings much less than that from foreign countries, especially Manchuria. There it is obtained wild, the roots possessing a grotesqueness of contour not seen in the cultivated American plant; this is largely the occasion for the discrimination between the two, the Chinese ascribing certain superior qualities to the shape of the root. The Manchurian Ginseng also comes from the Emperor's mother country, "out of the same soil from which he, the Son of Heaven, sprang, and hence is regarded as a more potent life-giving remedy." In some cities the American brand is preferred, as being milder and cheaper. Five grades are recognized, and the merchant must supply each community with its choice, which is often not dependent upon the real quality of the roots.

Laryngeal phthisis is treated by Hamm. (*Therap. Monet.,* July, 1905), in its general aspects, according to the principles now well known. The local treatment varies with the stage of the lesion. In progressive and severe cases of phthisis, all applications as well as astringent inhalations should be stopped. Only narcotics should be used, and orthoform should replace morphine in insufflations or other topical applications. Inhalations are simplest and best; ℞, Balsam Peruvian. ʒi; Sp. Vini Rect. ʒss. M. S. Fifteen drops shaken up in a jar with boiling water or camomile tea and inhaled through a long paper tube, tied. Caustics are necessary if infiltration or ulcers are present. Lactic acid, tri-chloracetic acid and the galvano-cautery are equally good; the first of these must be used in not too weak concentration, and must be rubbed in with some force. Curetting under cocaine is appropriate, but every nook and cranny cannot be reached in this way. Hamm would send his patients in winter to the North Sea Islands. Here the temperature is more even than in Italy or at Davos, there is no sudden fall at sundown and there is no dust.

Perineal abscess is discussed by Alexander (*Med. Rec.,* Oct. 28, 1905), who believes that practically all perineal and periurethral suppuration are accompanied by infection of the tissues above the triangular ligament. Upon this assumption simple incision and drainage of the pus foci below the triangular ligament is not sufficiently radical. Alexander opens a perineal abscess by a free median incision from the scrotum to three-fourths of an inch in front of the anus. The deep layer of the superficial fascia is divided for the entire extent of the incision. The abscess cavity, after the evacuation of the pus, is cleansed of all necrotic tissue and any sinuses or pockets are opened. The membranous urethra is opened upon a staff with a wide median groove; this incision should divide the floor of the canal and the lower border of the triangular ligament and should extend from the bulb of the urethra to the apex of the prostate. A careful exploration for any foci of suppuration is then made by the forefinger passed into the urethra through the perineal incision as the staff is withdrawn; it may be well even to make simultaneous counter pressure with the finger of the other hand upon the anterior wall of the rectum.

Skin diseases in young children should be treated according to three fundamental rules, states Fox (*Practitioner,* Oct., 1905). First, scales, serous discharge, pus formation and crusts must be completely removed by non-irritating methods, such as gentle bathing with tepid oatmeal gruel, the crusts being softened by olive oil, boric acid fomentations or cold starch poultices. Second, scratching and rubbing must be prevented by soothing applications or by the manual application of cardboard splints. Third, inflamed surfaces must be treated by medicated dressings and an occlusive one in the form of a compress of muslin or lint spread with salves or in the form of pastes or varnishes.

Sciatica is very ably discussed by Leszynsky (*Med. Rec.,* Sept. 9, 1905). Sciatic neuralgia is rare; the term has been indiscriminately applied to all painful affections in the course of this nerve. Pain occurs in all diseases associated with compression of the sciatic nerve or the sacral plexus. The vertebral column may be involved, or there may be tumors, and inflammation in the pelvis, malignant disease of the rectum, aneurisms and hemorrhoids. Such pain may indicate a general toxæmia, or may be a referred pain in urethritis and epididymitis. Cases which develop rapidly are likely to be due to cold; those which develop slowly, on the other hand, are either due to some form of external pressure or are symptomatic of intrapelvic disease. A careful examination must thus be a prelude to intelligent treatment. Rest in bed with or without fixation of the extremity by a long splint is most important. The ice bag will be helpful in some cases. The rectum should be cleansed by enema followed by hot saline irrigation at 110° F.; undoubtedly marked relief of the pain will follow such irrigation, which may be repeated several times a day. Massage is better borne after the more acute symptoms have subsided. Superficial linear Paquelin cauterization over the sacral region and along the course of the nerve trunk is often effective. Continuous galvanism (large electrodes, one placed over the lumbar region, the other in the popliteal space) are appropriate at the end of the first week. The current should be as strong as the patient can tolerate with comfort. Modified rest cure may be indicated in subacute and chronic cases. Much may be accomplished by daily massage with passive movements and regulated systematic exercises. Occasional passive extension of the limbs should be made, thus moderately stretching the nerve and loosening adhesions.

The California State Nurses' Association, notes an exchange, have asked the State University to recognize the nurses' profession on the same footing as medicine and law, by examining and registering nurses in training schools in the manner that all secondary schools are examined.

MISCELLANY

Avoid amputation, if possible, in dealing with infections or injuries of the fingers, especially with the thumb, the most important of the digits.—*Am. Jour. Surg.*

Labor will be a dream, declares an exchange, if you give the primipara half an ounce of castor oil every other night for two weeks before the expected date of birth.

Intravenous saline infusions are harmful in volume beyond one to one and one-half pints for an adult of average weight; congestion of the internal viscera may be a sequel, states *The Medical Standard.*

A London doctor, summoned for debt, said that he could not pay because so many of his professional brethren in his district were charging sixpenny (12 cents) fees that he was unable to make a living.

False appendicitis is dwelt upon by De Nittis (*Presse Med.*), who gives the histories of several cases in which, although the symptoms strongly indicated the presence of appendicitis, no inflammation of the appendix was found on operation.

Princess Henry of Battenberg has opened a bazaar in aid of the funds of Darlington Hospital, in London. If her genial and too amiable husband falls a second time into the clutches of an American dentist, he will be likely himself to be in need of such funds.

The Eucalyptus tree has been considered by the Panama Canal Commission for the purpose of eliminating the breeding places of the mosquitoes, this method having been used with much success by the French in Algiers, the marshy lands having thus been dried up.

Patent Medicine Peddlers, who go about the country vending preparations containing alcohol must hereafter pay a special tax at every separate place where they make any sales. This is the order issued by Commissioner Yerkes to all collectors of internal revenue.

A True Saying.—Maxim Gorky, in the November *Cosmopolitan* declares: "The world will surely agree with me when I say that inordinate development of the intellect weakens the capacity for feeling, and that the very instinct of life itself may be undermined by such development."

A reversion to type is indicated in the lay newspaper medicine of to-day, according to which two investigators at the University of Chicago declare that, "What we have learned gives us hope that some day we may replace the wounded or worn-out heart of a human being with the healthy, youthful and strong one from a living monkey."

Precancerous conditions in the breast are enumerated by Robson as eczema of the nipple; chronic inflammatory enlargement; cysts and adenomas, and indurations following injuries. If the eczema does not speedily yield the nipple should be excised with the first portion of the primary ducts. In the other cases the involved lobules or the whole breast should be removed.

To prevent stage fright and to combat nervous asthenia our Denver namesake advises ten drops of the tincture of gelsemium three times a day. This is a suggestion which should be especially valuable to young colleagues reading their initial essays before medical bodies. Even heroes of a hundred papers and much adverse discussion would de well to have recourse to it.

Prof. Behring's Remedy is, as he emphatically states, still *sub judice.* It were best, therefore, to withhold comment concerning this serum, which may become a potent factor against the disease tuberculosis, until the eminent scientist himself gives to the world a succinct and authoritative account of it.

Graveyard Insurance is the form written for large amounts on persons about to die. The "Armstrong Committee," now in session in New York City, is declared to possess evidence to the extent that extensive fraud has been worked in these policies—being in effect a form of insurance bribery. It would seem that this fraudulent practice has been in vogue for many years.

Sea Water Injections for Phthisis have been made by Simon and Quinton in Paris. Eighteen cases of tuberculosis were thus treated, the sea-water having been made isotonic and sterilized. From 50 to 300 c.c. were injected every three or four days. The results (reported at the Académie) showed in fifteen cases a mean gain in weight of nearly one ounce a day. The treatment lasted on an average for sixty days.

Sir John Scott Burdon-Sanderson, regius professor of medicine at Oxford University from 1895 to 1904, died recently in London. He was one of the greatest medical authorities of his day, and held, during his long life, many important positions. He was at the head of many royal commissions for the investigation of disease, including cattle-plague, cerebro-spinal meningitis, tuberculosis, etc.; and his many reports on infectious diseases and sanitation are of great value.

The Tuberculous Cattle on the Dominion experimental farms at Nappen, Nova Scotia, are not to be slaughtered. The veterinary inspector general, Dr. Rutherford, has recommended that experiments be made in the hope of eradicating the disease by the fresh-air cure. The sound and diseased animals in the herd will be separated and housed under the most approved principles of sanitation. It is hoped to effect a cure by introducing some treatment that has proved beneficial to human beings.

The British Science Guild, made up of the scientific bodies in England, has for its purpose to popularize science; to make evident to the average Englishmen the importance and the profit of adopting scientific methods; and to warn him that in this way only can he hope to maintain a leading place in the world. It is also purposed to extend the efforts of this body to the British Government as well, inducing it to adopt scientific methods in all its departments. The *Harvey Society,* of New York City, has in view the like aim of spreading scientific knowledge among the people, at least with regard to medicine.

A Memorial Window to Dr. Edward L. Trudeau, Jr., who died in New York City in 1904, under very touching circumstances, was recently placed in the church of St. John in the Wilderness at Paul Smith's. The funds to this end were subscribed mainly by young Dr. Trudeau's friends among the campers and summer visitors in the Adirondacks. Mr. J. L. Aspinwall, the architect of the church, undertook to carry out the wishes of those interested in the memorial, which shows a pilgrim in an attitude of reverence and admiration, holding in his right hand a staff which bears the serpent entwined about it, the symbol of Dr. Trudeau's profession.

SUGGESTIVE THERAPEUTICS.

PART I.

BY W. T. MARRS, M.D., JEWETT, ILL.

THE object of this series of papers is to bring the valuable points contained in psycho-therapy as intelligently before the profession so far as is possible in the amount of space allotted. It is my aim in this presentation of the subject to divest it of all that is to the novice at first so alluring and later disappointing. The writer having examined, with some measure of thoroughness, extending over a number of years, the various schools of hypnotism and suggestion, he will undertake to sift the wheat from the chaff, and offer only practical suggestions, such as may meet the approval of the most conservative medical man. It is my desire so far as possible to eliminate the name "hypnotism" and cognate terms, and will endeavor to show what has been done and what can be done by suggestion in the waking state as an adjunct to regular medical treatment. We may note in passing, however, that there are morbid conditions and functional ailments that can be quickly relieved by suggestion given the patient under deep hypnosis. As an aid in minor surgery and other selected cases, complete hypnosis is often of great benefit. But hypnotism, like many other agencies, is a two-edged sword, and in the hands of an unskilled operator may work injury to the patient. If the patient is weak, nervous and self-conscious, he may be strengthened physically, mentally and morally by suggestion properly given, while in a state of hypnosis or passivity. If, however, he only be made a martyr to scientific research and put to all kinds of severe and ridiculous tests at frequent intervals his weak points may become more accentuated and he may become somewhat of an automaton.

Another reason for discouraging hypnotism indiscriminately used is owing to the superstition and misconception surrounding it, making the mention of the word hardly permissible in the presence of a patient. Furthermore, the fakirs, fortune-tellers and show people in general seem to have a corner on the mysticism attaching itself to the word, so that educated physicians do not care to vie with that class of individuals. In speaking of this phase of the subject I wish to state that I have developed a number of subjects into the clairvoyant and somnambulistic states with no untoward effects resulting to them. So much depends upon the conscience of the operator.

The term "suggestion," as we shall use it, is of rather broad significance and may be defined as being somewhat synonoymous with "imagination." It is anything that causes in a person some involuntary effect, the impulse to which passes through the intellect, producing some imagination or ideation. In other words, it is any idea which controls or favorably impresses an individual. If we simply think of it as anything which produces imagination in a person we have a working basis for our study. That the imagination is a great causative as well as curative factor in disease no one will deny. All suggestion is mediated through an ideation or action of ideas or illusion. The great susceptibility of the organism to influence from such ideation explains the part played by the imagination in causing and curing certain diseases. Suggestion may operate in many ways to reach the brain. The most direct and forceful is verbal, when it reaches the center of ideation through the ear. If written it passes through the eye. Smell, touch and taste are also easy routes for suggestion. The saliva flows when we smell delicacies or hear them spoken of. Touch produces impression, hence the thrill that lovers know so well, and the feeling we experience when one of influence or station grasps us by the hand. Associated with touch is the law that impressions made upon the periphery always relieve tension of the cerebral centers. For this reason massage and other rubbings or anything acting upon the cutaneous surface are not without their effect upon the deeper centers.

We say to a young girl: "How you are blushing!" Her face may be placid, but a suggestion like this will affect her vasomotor system and soon her face is suffused with redness. By yawning or pretending to yawn you can set a whole company to yawning. In fact, we are all amenable to suggestion. We can not discuss at length the different phases, physical, psychical, etc. One's susceptibility depends so much upon age, sex, health, education, temperament and environment. Strong, sturdy, hard-thinking men are not susceptible in a degree to compare with weak, sensitive persons, especially women, children and old men. But one person may be influenced by a suggestion that would have no influence upon another. It all depends upon what appeals to one's faith and belief. Faith in one's physician and his reputed skill is often the determining factor in the alleviation of one's ills. The personal equation of the doctor is important. Many physicians are more successful than others, not so much by reason of superior knowledge, but mainly because they grasp the patient's mentality and appease his psychic needs. Many wonderful cures (?) in the past, as well as in the present time, have been performed through the agency of the mind. Many of these have been accomplished through the sufferer's subjective faith without the alleged healer's intervention or knowledge. A patient of the writer's cured himself of the tobacco habit, thinking some medicine I had given him was for that purpose. He had stated that nothing tasted natural only tobacco. As I handed him a box of calomel tablets I flippantly remarked: "Perhaps these will take away your taste for the weed." He quit tobacco for good and heralded the fact of his great "cure" to his friends. Great is imagination! The religious zealot gets the same effects from being rubbed by the bone of a donkey as when rubbed by the bone of a patron saint, if she be not disillusioned. If the disease be functional, good results may follow, depending upon how strenuous the faith; if the disease be organic, the mind may be appeased.

It is a law of psychic phenomena that the things we earnestly hope and desire or firmly expect are the things most likely to be experienced. Very few youths are troubled with seminal emissions until they have read the harrowing details set forth in the "lost manhood" literature that floods the country. The large sale of patent medicine is mainly due to the crafty advertiser whose skilful words are calculated to catch the weak and suffering. Medical students often become neurotic from studying disease. A professor of chest diseases in a medical college told me that when he began lecturing on diseases of the heart each winter the boys would flock to him at night to have his assurance that they were not suffering from serious cardiac lesions. We know that where a number of persons are closely associated how contagious certain neuroses are, *e.g.*, chorea, hysteria, etc. There is hardly an abnormal con-

dition—even hydrophobia—but can be successfully simulated. The physician should try to grasp the cause of disease (not ease), whether that cause be physical or psychical, from without or from within.

Ancient medicine was a sort of crude psycho-therapy domineered by the priests and soothsayers. History is replete with accounts of their work where, of course, imagination performed the cures. Sometimes instead of cures curses and diseases were multiplied. In all ages many different names have been applied to the *modus operandi* of healing. It seems that something palpable has always appealed more strongly to the imagination and rivets the attention; hence we note the history of holy wells, amulets, relics, magnetized objects, laying on of hands, and many other things galore. More recently we have faith and magnetic healing, Christian science, Dowieism, placebos, etc. In all these where ills are relieved suggestion appeals to the mind in some way that causes it to assert its supremacy and control over that part of the organism which is affected.

While the latent forces of the mind have always operated for the good or ill of the afflicted, it has not been until the last few decades that any systematic or intelligible application has been made of it. In the succeeding papers I shall attempt to show how suggestion may be used with good results during the waking state, during hypnosis and during natural sleep, with reference to special diseased conditions.

THE X-RAY AS A THERAPEUTIC MEASURE.

BY GEO. R. WILSON, M.D.

PART II.

Most exhaustive of the uses of the X-ray was the report by Pusey published recently in the *Journal of the American Medical Association*. In hypertrichosis the use of the X-rays for the permanent removal of hair has not equalled his expectations; they have given satisfactory results only in about 50 per cent. of cases, but to get these results has required long and painstaking treatment. In sycosis and tinea sycosis Pusey's results with X-rays are exceedingly satisfactory, and in some intractable cases they give results that are obtained in no other way—and are permanent; some of Pusey's cases having been well more than three years.

It is in acne that the X-rays are little short of marvelous; improvement being produced in the most obstinate acnes from careful X-ray exposures. Pusey never failed to see an improvement take place after a reasonably long period of treatment, and in many cases where no other method had been of benefit. The application of X-rays for acne has to be carried out with great care, and it should not be undertaken until the operator knows with reasonable assurance the X-ray effect he is going to produce. The treatment extends over a considerable period of time, perhaps several months, and unfavorable after-effects on the skin, Pusey has not seen.

The use of X-rays in chronic inflammatory dermatoses has proved of great value, thus in chronic indurated eczema Pusey's experience, like that of numerous others, testifies to their usefulness, particularly in the chronic intractable eczemas of the hands, in chronic indurated eczemas of other parts, and in acute exacerbations of old eczemas. Their effect in relieving itching is frequently quite marked, but sometimes fails, but their effect is not limited to the relief of itching; there is also a positive influence on the metabolism of the affected tissues causing complete disapppearance of the diseased condition.

In pruritus ani and vulvæ Pusey found the benefit from the use of X-rays that other observers have reported; but although the temporary relief of itching has been very common he is not sure that any case has been permanently cured, but the relief that can be given, however, fully warrants the use of the treatment. In pigmented and flat vascular nevi Pusey's experience with a few cases has led him to believe that X-rays offer a method of treatment of distinct value.

Pusey has seen but one case of lupus vulgaris which failed to yield satisfactorily to the X-rays, and that was a case of lupus of the face extending deep into the tissues, which had recurred after a plastic operation; in his experience, lupus yields readily to X-rays, and when the treatment could be carried out satisfactorily the results have been all that could be desired. "We had some failures in lupus vulgaris, but they were failures which, I believe, may be reasonably attributed to the fact that it was impossible, on account of the patients, to carry out the treatments satisfactorily." There is surely no other method of treating lupus vulgaris that stands in the same class with X-rays, except Finsen's method, and the results from Finsen's method are as good, but Pusey believes that he can duplicate any of the results of Finsen's method. X-rays have certain very decided advantages over Finsen's method, for the results are more rapidly obtained; the treatment is applicable to mucous membranes; it will reach lesions much more deeply situated; it does not require the aid of supplementary painful, mechanical or caustic methods of treatment; there is no discomfort from the application of pressure to the surface to drive out blood; and the treatment can be applied at one sitting to large areas, while in Finsen's method it is impossible to treat more than about one square centimeter of diseased tissue at a sitting.

After an extensive experience in the treatment of tubercular glands, especially those in the neck, Pusey's experience has been variable, thus, in the treatment of primary cervical adenitis without involvement of the skin, in many cases reduced the size of the glands, and by long continued treatment to cause them to decrease to the point of disappearance. In other cases there has not been much improvement. In the treatment of cervical adenitis, in which there was already involvement of the skin, results have been more positive; in nearly all cases it has been possible to cause healing of the sinuses and distinct improvement in the condition. His experience in tubercular joint has not been extensive. In some cases the rays have not appreciably affected the condition.

Pusey's experience with epitheliomas now covers a large number of cases, including lesions of all descriptions, from the smallest epitheliomas to large lesions, and the results which have been obtained have given him the utmost confidence in the use of the X-rays in this condition. I will quote his own words: "I am almost prepared to say that I believe that any cutaneous carcinoma can be cured with X-rays. When I say cutaneous carcinoma I mean to exclude metastases or extensions deep into the underlying structures; but this exclusion does not limit the application of this method to cases that are easily amenable to surgical methods, because there are still left certain lesions which from their extent are beyond surgical intervention, and numerous other lesions in which surgical treatment is unsatisfac-

tory or undesirable, if not impossible. As to the class of epitheliomas which are suitable for X-ray exposure I believe it may be said broadly that all epitheliomas are suitable for this method of treatment except those cases in which conservative surgery requires the removal of contiguous glands. For epitheliomas in certain localities the X-rays offer particular advantages on account of the favorable character of scars that result. This applies especially to epitheliomas on the nose, of which I have had many cases, to epitheliomas on the ears, of which I have had several cases, and especially to epitheliomas on the eyelids. I have treated by this method several cases of epithelioma on the lower lid in which there was no involvement of the deeper tissues of the orbit, and in all of these, except one in which the patient would not allow sufficient treatment, a successful result has been obtained without interfering with the function of the lid or in any way affecting the eye. The unsuccessful case shows improvement that has remained permanent for two years. There has not been any relapse in any of the others, and one has been well two and a half years. Among my cases of epithelioma on the nose are a few successful cases of very extensive epitheliomas, involving the tip and the alæ of the nose, and the contiguous parts of the cheek, which had failed of relief from operations, or in which surgery offered no prospect of relief except by extensive and very mutilating operations. One of these cases is among those I demonstrated three years ago symptomatically cured, and this patient remains well now. There is a type of epithelioma of the nose which we fortunately see rarely, which is situated deep in the tissues, and is of very rapid growth. When patients with this type of lesion come under observation the nose is usually almost completely destroyed. There are large nodular masses at the border which I melt away rapidly with great destruction of the tissues. I mention this type of lesion because in two cases of this sort that I have seen, one of which, I thought, had adequate treatment, X-rays did not materially check the course of the disease. Likewise, I have failed of successful results in several extensive carcinomas of the orbit. I refer now to the very destructive lesions which we sometimes see that involve the whole orbit, and in time leave an enormous cavity. Very great improvement can be made in these cases, and the course of the disease can be almost completely checked, but I have not seen radical relief."

Treating many metastases of carcinoma in the neck arising from carcinomas in the mouth or on the lip, Pusey's experience with X-rays is that they are as futile as every other method in the treatment of the deep carcinomas in the neck. In two cases, however, in which there was a development of carcinoma in the scars after operations on the neck for carcinoma, which have been successful. In one of these cases there was a recurrent nodule in the scar on the lip, and small nodules in the scars under the chin where glands had been removed; a third operation had been advised by a prominent Chicago surgeon. In the other, a similar case, there was development of small nodules in the scar. Both of these patients have been well now more than two years. In all other cases the ultimate result has been failure. There has been distinct benefit in some of these cases in the way of relieving pain, and of getting rid of much carcinomatous tissue, but in some of the cases there has not been even this. In a large number of recurrent carcinomas of the breast, almost every one of which has been referred to him by a surgeon, and all of which were hopeless of other methods of relief, the results have been so surprising occasionally that he has not refused to treat any case unless there was already well-developed evidence of mediastinal or pulmonary involvement or of deep-seated distant metastases. It goes without saying that in such a desperate class of cases failure after failure has followed, and yet in many of the ultimate failures the treatment has been well worth while in healing ulcerations on the chest wall and in similar palliative ways. There can be no doubt that in many of these cases the course of the disease has been greatly checked, and the patients' lives have been prolonged in comparative comfort for many months, or even for a year or more. In a good many cases results have been obtained which have proved permanent to the present time. Of the three cases of recurrent carcinoma of the breast presented three years ago, one died eighteen months later of carcinoma of the lung; the second case died fifteen months later of carcinoma of the spine without recurrence in the chest wall. The third case remains well to-day; this patient had had two operations, and on the third recurrence consulted Dr. Ochsner, who refused to operate further, and referred her to Pusey in September, 1901. She then had two ulcers the size of a fifty-cent piece in the scar surrounded by an indurated border of carcinoma. When her case was reported in February, 1902, Dr. Ochsner, in referring to the case, said that in his opinion she would have died before then had she not had X-ray treatment. She has never had another recurrence. She has had several series of X-ray exposures since that time as a precaution, but has now had no treatment for over a year, and she has remained symptomatically cured for three years. She has been in good health during all this time, and has been able to earn her living. Pusey has similar cases with symptomatic cures that have persisted for from one to two and a half years.

Pusey believes that X-rays as a method of treatment of primary carcinoma of the breast should never be undertaken when operation is possible; but that something can be done in primary carcinoma of the breast is shown by postmortems that were made in two patients of mine who had been treated in this way. One case was a large primary carcinoma of the breast with involvement of the axillary glands, and with spinal involvement at the time the treatment was begun, and treatment was only given on the family's insistence. She had X-rays to the point of producing a dermatitis before she died. Postmortem, the breast was found a mass of connective tissue with little gland tissue and no carcinoma tissue left. The axillary glands had almost entirely disappeared, and there was increase of connective tissue in their place. Treat by X-rays carcinomas of the breast in which, for any reasons, operation is out of the question; but do not advise X-rays as a substitute for operation.

Pusey's experience in sarcoma, while not nearly so large as that in carcinoma, includes a considerable number of cases, and it indicates that sarcomas are affected by X-rays in practically the same way as carcinomas. He inclines to believe that they are affected somewhat more readily. As the results, on the whole, are similar to those in carcinomas of similar extent. Sarcomas are rarely found without the presence already of metastases, the results have been less favorable. Much can be done in way of palliation in many cases, and symp-

tomatic cures can be obtained occasionally.

As to prophylactic use of X-rays after operation for malignant diseases, the number of cases in which he was able to carry out this procedure, while considerable is not sufficient to allow of definite findings. This use of X-rays is logical, and its utility is strongly confirmed by the results; after operations for carcinoma and some after operations for sarcoma there are strong reasons for believing that the use of X-rays has saved the patients. A few of the patients had had repeated operations for recurrences, and under X-rays have remained well now for a much longer time than any of the intervals between their previous recurrences. In a very few, the most desperate cases of this sort that I have treated, recurrences have taken place in spite of X-rays, but the cases so treated by the X-ray seem to be better than it was before this became their practice. It has been suggested many times that possibly the danger of the spread of carcinoma or sarcoma was increased when the lesion was exposed to X-rays. In the several hundred cases that Pusey has treated he has never seen a metastasis occur that seemed reasonably attributable to the use of X-rays. Metastases have certainly not occurred more frequently than would be expected naturally.

Tousey relies more upon the fluoroscopic than upon the skiagraphic examination in stomach work with the X-ray alone. In the *New York Medical Journal* he states that with the fluoroscope the spleen and liver is just as clearly defined as if the abdomen were made of glass; these are both in constant motion, owing to respiration, and with no radiographic technique can we secure a picture that is anything like as clear as what we can see directly. Sometimes a tumefied anterior wall or pyloric extremity of the stomach can be quite positively made out with the fluoroscope, and be merely indicated with a reasonable degree of probability by a skiagraph; a tumor of the stomach is almost transparent to the X-ray, and is in constant motion during respiration, and is better studied directly.

All Tousey's work with radium and radioactive solutions, both in laboratory work and in the treatment of patients, has been with radium of twenty thousand radioactivity, and the amount use in each case has been one decigramme; the radioactive solution has been prepared by immersing such a quantity of radium, enclosed in a hermetically sealed glass tube, for four weeks in sixteen ounces of normal saline solution contained in a stoppered glass jar. The quinine bisulphate solution contains ten grains of quinine bisulphate, and five minims of dilute phosphoric acid to a pint of water. The fluorescent solution contains one-eighth of a grain of fluorescein, twenty grains of sodium bicarbonate, and one dram of glycerin to the pint of normal saline solution.

Tousey's observations up to the present time are as follows: One ounce of radioactive solution and one ounce of fluorescein solution, mixed and enclosed in the thinnest rubber tissue, placed over a twenty-five cent piece and a five-cent piece, beneath which is a kodak film enclosed in light proof envelopes of black and orange paper, as for X-ray photography; the whole being left in a dark room for eighteen hours, produces no picture when the film is developed, and radioactive solution examined in the dark shows no luminosity. Radioactive solution shows no fluorescence by gas light, or when exposed to the author's Cooper Hewitt light, a four-hundred candle-power light, of which the spectrum is practically pure violet. Nor does radioactive solution show any fluorescence with the X-ray either, when exposed directly to the light from the X-ray tube, or when the visible light from the tube is cut off by enveloping the latter in heavy black felt, so that only the invisible X-ray reaches the radioactive solution. It does not fluoresce when exposed to the ultraviolet ray, as produced very abundantly by Piffard's modification of the Gorl lamp. Radioactive solution poured over a piece of Willemite produces no fluorescence in the latter, and a piece of Willemite immersed in radioactive solution and exposed to the Cooper Hewitt light shows practically the same fluorescence, being a faint green crystalline glow as if the fluid had not been present. A piece of Willemite immersed in radioactive solution, and exposed to the X-ray, either directly or after the ray has passed through a book or a human hand, shows practically the same white glow as if the fluid was not present. A piece of Willemite immersed in radioactive solution and exposed to the ultraviolet ray from the vacuum electrode used for the application of high frequency currents, shows the same fluorescence as if the fluid was not present. The Willemite becomes a brilliant green, and the associated masses of calcite become pink. A piece of Willemite immersed in radioactive solution and exposed to the ultraviolet ray from the Gorl lamp shows practically the same fluorescence as if the fluid was not present, the difference being that the glow is a very little whiter. The Willemite itself is a very brilliant green, and the contained calcite is a brilliant pink. This fluorescence persists for five minutes after the ultraviolet ray has been turned off, and during this time, if the piece of Willemite is held close to the eye in a dark room, one seems to see a brilliant large white light. A solution of fluorescein, one grain to the ounce, gives a brilliant fluorescence when exposed to the X-ray enveloped in havy black felt, so that no visible light, but only the invisible X-ray can reach the solution. A solution of fluorescencein shows no fluorescence under the same condition of excluding all visible rays with the Cooper Hewitt light, the ultraviolet ray from the Gorl lamp, or from the vacuum electrodes. A solution of fluorescein shows most beautiful fluorescence when exposed directly to sunlight, the Cooper Hewitt light, the X-ray, or the ultraviolet ray, as produced by the Gorl lamp, or by the vacuum electrodes used for high frequency currents. A solution of fluorescein mixed with equal parts of radioactive solution fluoresces with the X-ray either direct or when protected from visible light by the hand or some other opaque substance, but the fluorescence is not brilliant. When exposed directly to the Cooper Hewitt light or to the ultraviolet ray from the Gorl lamp, or from the vacuum electrodes, this mixture of fluorescent and radioactive solutions had a brilliant golden fluorescence, and an opacity which merit for it the name of "liquid sunshine." Quinine solution in a test tube, in which is immersed a small tube containing radium wrapped in opaque black paper, fluoresces very well in the dark. Fluorescein solution fluoresces much more brilliantly under the same conditions, the fluorescence in each case being confined to the fluid very close to the radium, and when the radium is lifted from the solution the fluorescence in the fluid ceases, and no radiance is visible from the radium through the black paper in which it is wrapped. No peculiar appearance is observed when a test tube full of quinine solution, in which is the small tube containing radium, is ex-

amined with the X-ray fluoroscope. But when such a tube full of quinine solution, alone or mixed with radioactive solution, is enclosed in a dark box and exposed only to the invisible X-ray and looked at with the naked eye, very good fluorescence is visible. In patients, to whom radioactive solution has been given subcutaneously or by the mouth, no disturbance of any kind has been produced. Four-fifths of an ounce of radioactive solution were injected into the lumbar region of a cat weighing twenty-four hundred grammes, and the injection was repeated every two or three days for a week. There was at first slight looseness of the bowels, which was thought to indicate that the injection was too large, and the smaller amounts used subsequently produced no undesirable effect on the cat at all. Half an ounce of the radioactive solution was injected into the lumbar region of a rabbit weighing nine hundred and ninety grammes, and this was repeated every day or two for a week. The only perceptible effect was that he was livelier than before the medicine was administered. A dog weighing about twelve pounds was etherized and radioactive solution injected through the left femoral vein; the right common carotid artery has been opened and connected with a mercurial manometer registering the blood pressure upon a skimograph. At first thirty cubic centimetres were given very rapidly, and the same quantity was added after a five-minute interval. The only effect noted was a slight rise in blood pressure when the infusion was begun.

A rabbit weighing five pounds was killed, and the abdomen opened; the stomach was filled up with a mixture of radioactive and fluorescent solutions. The pylorus and cardia were ligated and the abdomen sewed up. The animal was examined by the X-ray in the dark, and all visible light from the X-ray tube was excluded. No fluorescence was visible to the naked eye, but with the fluorescope the stomach region seemed very transparent and could be mapped out exactly; an X-ray picture was then taken with the animal upon the table. The picture presented the outline of stomach in a brilliant manner; then the stomach was emptied of all its contents and another picture was taken under the same conditions in every particular. Tousey's conclusions based upon observations up to the present time are:

1. Radioactive and fluorescent solutions, as prepared above, are innocuous when given by the mouth or subcutaneously. 2. They do not produce, either singly or in combination, sufficient fluorescence to be of value in the examination of the stomach, without the use of some additional light to excite their fluorescence. 3. They will in some cases be of the very greatest assistance in the X-ray diagnosis of stomach lesions. 4. They will in some cases be of value in the X-ray treatment of stomach lesions.

"Gallstone Cures" are claimed by a German "Heil-Magnetopath," who advertises that by administering a strong purgative and then some oil he can expel gallstones in two days. Peculiar yellowish balls are evacuated, which contain, however, none of the ingredients of gallstones. The Board of Health of Carlsbad have warned the public against paying the excessively high rates charged by this magnetopath for what is practically a simple purge. This treatment is moreover liable to be very injurious to persons with existing inflammation at any point in the intestines.

PHYSICIAN'S FINANCIAL PROBLEM.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

LET us devote a half hour to some consideration of one of the most important and universally-felt interests of our profession. The subject of this paper has direct reference to the most vital interest of the majority of physicians, especially of our younger physicians, namely, their livelihood. The stress and excesses of the times have rendered thoughtful consideration of the financial problem the "question of the hour" among thousands of medical practitioners. Some years ago, in the Philadelphia County Medical Society, the question took the direction of an examination into the legitimate uses and practical abuses of free medical dispensaries in this city, with a view to a better protection of the general practitioner by the correction of impositions connected with free charitable institutions. Furthermore, in the Northwestern Medical Association of Philadelphia, in effective working order at that time, the physicians' financial problem assumed more definitely the shape of devising a better mode of securing professional remuneration for services rendered to those able to compensate the physician; and also, some efficacious plan of mutual protection against the impositions of such unprincipled individuals as are either almost, or altogether, indifferent to the professional claims of physicians for services rendered.

All grounds of financial support need to be replowed every year and the seeds of conscience sprouted anew to promote an average harvest of comfort for the physician's family without the humiliating burden of debt. The financial problem of doctors should be based upon grounds of common justice. These timely remarks have no disparaging reference whatever to any of the honest, worthy people whom it may be our fortune to number among our patrons and friends—persons who, we are proud to say, are conscientiously considerate and punctual in substantially remunerating their medical attendants. Narrowness of margins for paying the doctor is a truly common condition among a large class of honest, even industrious, people. I speak the natural feeling of medical gentlemen in general when I admit that we esteem it a cherished pleasure and honor to enjoy the confidence and patronage of such; and we often cordially reciprocate their friendship, as well as their moral comprehension of Golden-Rule justness toward us, with an appreciation of most regardful character. We will not deny that there are affinities welcomed in medical service that brighten the path like lamps that dispel the gloom of many trials. When we serve such patrons, we serve them with our hearts as well as with our intelligence, and baptise our professional efforts in their behalf with invocations of blessings and benedictions of love! It is a gratifying comfort to declare that, in such cases, our financial problems need no solution! They are already the clarified essence of our professional vitality—to some of us the tangible business buoys upon which we "live and move and have our being" as doctors. No men so much as the members of the medical profession have constantly in mind the words of the Good Physician: "Ye have the poor always with you," and every true physician does not propose to withhold professional aid from the unfortunately

needy, who have not cash means with which to compensate medical service in illness.

There are the crippled and infirm, shattered by the violence of misfortune and bent by the weight of years; there are the destitute, made so by the devastations of grievous circumstances; there is the widow, veiled by the cloud of acute bereavement and the impenetrable gloom of lonely destitution; there are the impoverished children of tender years, upon whose lives the clouds of pitiable orphanage have inexorably settled. Upon the altar of the necessities of such as these the true physician is ever willing to lay the offerings of considerate humaneness. But our attention must apply positively to another class of individuals—one that through indulged defect of moral principle, in conjunction with certain demoralizing, even pauperizing customs of physicians themselves, seriously, and sometimes well-nigh ruinously, embarrass the temporal comfort, the essential progress and success of the physician's life, as well as the comfort and prosperity of those dependent upon him for worldly support.

As a rule medical services must be and are rendered on faith. While nearly all other forms of business may be conducted on a practically cash basis—a basis where there may be protection of capital and labor from the consuming maw of the idle, the improvident, the dishonest, and the habitually derelict—the business of the medical practitioner in general is radically and practically a trust business, with no indemnifying securities, with all the advantages on the side of, and in the hands of, those for whom the capital and labor are expended. I recognize the over-lauded humanitarian conception of this unequal relation between physician and public. In an ethical and esthetic sense this humanitarian idea—this all work, all trust, all faith vision of the physician's mission—is very beautiful in its rainbow idealism! But the flame-colors of its idealization fade away, and the glow of its transient enthusiasm reduces its chief glory to the dull ashes of absurdness. The physician's progress in life may be said to run on a double track. One of these is the direct and continuous line of professional duty and work—the other is interminably interrupted by brakes and side switches of the relief of professional compensation. Men and women not a few are adroit artists at drawing a "poor mouth" and laying on their pallid colors of self-declared poverty. They paint with rare skill and strength of force: "Yes, I will, doctor, when I have it to spare," and "I would, gladly, if I could." Have we not all come under the scant mercy of these "poor mouth" deceitful, can't-pay experts, who meanwhile gratify their sumptuous appetites with every coveted luxury available, flit from one place of amusement to another like fashionable butterflies of pleasure, including their regular summer flights to expensive resorts like gilded birds of paradise? And whose money enables them to make these ostentatious exhibits? They usually put on the flourish of many airs and liberal expenditures for public display. There are presumptuous individuals who deem it as species of favoritism to bestow their patronage to a successful doctor so long as he is their devoted servant;—while he, through fear of losing patronage and greatly needed money by venturing to disturb the surface of said patron's complacency, tugs along, deeper and deeper, until the attenuating thread of his life at length snaps and the grand total is cancelled by the cold finger of death on one hand, and by his patron's quiet departure on a European trip on the other hand.

The scenes of the physician's life are among the realities of pain and suffering, disease and death. There is nothing about this that is festive and exhilerating to mind and body. Perhaps in the hour of severest duty the physician is harassed by financial embarrassments that prey like a paralyzing incubus upon his mind, and seriously militate against the freedom and completeness of his enlistment into all the bearings and indications of cases under his professional care. Through the thoughtless indifference of persons under more than pecuniary obligations to him, he may be compelled to squeeze through rough and rugged difficulties, day after day, that in all common justice should never have impeded the progress and efficiency of his high mission. "Custom makes law," and a bad custom makes a bad law. A defective law becomes the law of drawbacks. The law of continuous work-and-wait is the law of straggling shifts and dead weights. Any rule or custom that enjoys passive deference to an effete idea, from which there have evolved galling discomforts and tremendous injustice to the faith and toil of responsive physicians, is the rule and custom that grafts work and service into the scoop of one side of the scales and lets the other side go up empty.

Unfortunately there is a leader toward this dilemma. The acrimonious rivalry between physicians has often excited remarks of surprise. Doctors are of small account unless confided in. The new man called in, because of the chafe of the other man's unpaid bills, frequently by innuendo or victorious malice, stabs in the back the man he is gladly flattered to supercede—and all that is owing to the faithful servant is denounced and renounced as the shortest cut out of a heavy pecuniary obligation, the discharge of which is sorely needed by the man displaced. There are men in the profession who consider the medical arena a public claim-graft from rim to rim, whereon they propose to carve their individual way, ruthlessly, perhaps stealthily and maliciously, with the stilette that bleeds other's reputations! There needs be some wide-awake recognition of guerrilla invaders of the medical province who desecrate its sancity and cheapen its dignity in the eyes and appreciations of vacillating people. I submit that sheer ferocity is not the ruling characteristic of even animals roaming the forest if they are sufficiently fed. The keen-scented rivalry between physicians has too often had prejudicial effect upon an important part of the public, that has easily learned to forego the need of paying one by calling in another eager to take the vacated place. The lack of fraternal chivalry easily demoralizes the doctor's pay-roll. Much of the honored code of our fathers in medicine has outlived its appropriateness of application. The world is daily growing more shrewd and full of cunning in all grades of society. Daily more and more people are endeavoring to live by their wits and by beating the resources of others. Current necessities have increased. Wants grow numerous and pressing. Social demands exact to the limit. Under these conditions the man who

works hardest and waits longest without his pay is the man who is most certain to reap little beside a harvest of perplexing failures and dissatisfactions at the hardest time of life.

A panacea for the discomforting complications of our financial problem is perhaps unattainable. But remedials for their alleviation should certainly be brought within the reach of the general practitioner. The aggression of numerously increased hospitals in city and country, that cut quite in half the medical and surgical work of the time, should be resisted. Drafts for enormous sums of money from the State treasury, money collected by the process of public taxation, and appropriated profusely to cover wasteful expenditures in favor of and by these rival institutions, make them powerful monopolies in the field of general practice. These profligate appropriations by legislators, who but half understand the clinical situation, directly tend to pauperize the public estimates and instincts on lines of financial compensation, and very materially and seriously shrink the revenues of physicians in general who must depend on marginal incomes by private practice. If the hospital competition were less numerous, and limited its free service strictly to the indoor necessities of those who are admitted, instead of spreading abroad among outdoor patients who can be reached because of funds drawn from the State; and if said hospital outfits furnished the expense of treatment and nursing and board to the actual poor only, as it is the assumed and legitimate province of the public hospital to do, then the scope of available practice would remain unimpaired by this multiplying moth of "charity" that so ravenously consumes the texture of a square professional chance for comfortable and honest livelihood. Then the natural aversion of physicians to asking their patrons for pecuniary compensation has generally led to such postponements in presenting bills and insisting on their early recognition that many people have come to feel that a doctor strains a point of friendly etiquette if he presents his bill at all, and to call twice for his money is an insult! Physicians often find it so unpleasant to repeat their calls for purposes of collection that, after a few unsuccessful attempts with delinquents, they give it up for the time rather than subject themselves to the humilities of the distasteful task. This phase of the problem, again, is a demoralizing one to the crafty and dishonest, who purposely hold back their payments until the pursuit for money be abandoned through weariness or disgust. There are errors of certain of the public practice toward our profession of trust-work that woefully need correction. He who habitually writes prescriptions to be filled at the drugstores for every ailment medically treated, simply passes over to public possession the resources of professional prestige and income for a decade. Hit or miss, the laity will essay to treat themselves and even their friends and neighbors by the label and number on the druggist's bottle or box, while the dethroned doctor is scratching holes in his empty pockets. Self-defense is at least the second law of life. The average physician cannot afford to throw down his own fences to the invasion of even the druggist's interests because he holds upon his file the doctor's valued formulas for indefinite repeats. Furthermore, the physician's financial problem must suffer when he innocently takes the hook of the astute manufacturer who adroitly urges that, for certainty, the original bottle or package as labelled with name and full directions of the maker be prescribed. Our dear enterprising friends engaged in the pharmaceutical end of the problem of our practice so obligingly send out printed instructions of exactly how we should prescribe their specialty products to the public that is constantly watchful of chances to take its own risks within limits! The doctor who does not or cannot see when he dog-cheap gives away his own professional prestige in exchange for the therapeutic prestige of wide-awake manufacturers, should not murmur at the shrinkage of his bank credits. Other men in business are in business for profits that can be materialized through astute business management —they are not in business to expend caution and pecuniary care on men who lack protective instincts to such degree that they consent to help the other fellow first and best. The writer is an old physician, who has not been "laid upon the shelf" of disuse by giving himself away needlessly. He controls his own formula and therapeutics with all his patrons—because he is not too indifferent or too lazy to provide his own laboratory according to his own refinement of discrimination and practical needs. No man can supplant him in the production of his medical reliefs to the sick—and the year 1905 faced him with no deaths! That is the sweetest consolation of success. Let the tender, loving doctor KEEP all his friends, and he is always sure of practice!

One indispensable condition for the correction of financial errors will be found in a cordial, steadfast union of the medical profession, or any considerable given quantity of medical influence between the coterie whose work interlaces through the same community, and whose interests should be directed toward the defence of the mutual interests of each and all together—barring any Judases who are only on the alert to garrote or stab in the back the professional brother they can betray! And there are such! Look out for them! Study them—and mark them forever! In all communities the physician's financial problem needs unswerving demonstration that the medical profession respects itself enough to expect and to insist on receiving a reasonable pecuniary remuneration, and that, also, with considerate promptness by which the physician shall maintain his business repute among his fellow men. "Where there's a will, there's a way." In the prosperous business conditions prevailing in this country, there are few indeed who are not able, by considerate economy, to compensate the physician with money value—more able to do so than the physician is able to lose his earnings. Health is the most important possession in life. A substantial recognition of the doctor's dues should constitute the first and superior obligation for considerate adjustment—unless the medical attendant allows the conscience of his patrons to lapse into the habit o. shameless dereliction. But a grand clarifier of the physician's financial problem flows from the rule to scrupulously avoid making charges to families greater than they can comfortably afford to adjust. A moderated income from a family for twenty years nets superior returns above an initial overcharge never settled. People learn to love the man who considers their circum-

stances in life and metes his demands according to the measure of their ability to respond, and the doctor who is loved is the one who is best compensated. By accustoming all classes of patrons to an early or earlier rendering of bills, while the amount is moderate and the service is fresh in memory and appreciation, the satisfaction of both people and physician will be better assured, collections will be facilitated, and a healthier financial morale promoted. By a repelling law of human nature carrion is unwelcome to the senses, and the "dead horse" of old bills is always obnoxious to the comfort of both physician and patron! One account that dismays usually settles the clientage forever—and few general practitioners can afford to sustain a life-long loss.

If there is presumptuous lack of response to statements, and the necessary perseverence of the task of collecting be too distasteful or impracticable to the practitioner, there remains the excellent plan of the mutual employment by a community of physicians of a polite, reliable, earnest, courageous collector, who can systematically prompt and collect from a large number at the same time, and in a few months perform the disagreeable task of stirring the dilatory, rousing the indifferent, pressing the dishonest, and marking the "loafers and deadheads." While a trustworthy and accomplished collector is doing this for one, he can do it for all—thus placing every physician employing him upon a fairer and better basis for knowing exactly the financial status of his business. But while single-handed effort must naturally fail, united effort must succeed. It has often been the conviction of the writer that in many cases the adoption of a system of premiums and penalties by physicians might practically stimulate and facilitate a more satisfactory adjustment of their finances with many debtors. Such is the system with much other business. Persons who might pay more promptly often do not, for the reason that there is no practical inducement, while the tendency to indefinite postponement is encouraged, because there is no disadvantage accruing to the postponer. I believe there is propriety and practical wisdom in establishing the habit of rendering accounts or medical services at the close of each consecutive service, and that the "terms" of the physician, as in other business, be printed on the blank form of their bills; these terms to embrace the incentives to promptness by per centum rate of discount on early settlement; and also a statement of legal per centum rate of interest to be charged after the expiration of a reasonable length of time if payment be deferred. Some persons habitually in arrears might be encouraged thus to make a new start, and put themselves upon a more reputable record. The present is an age when men of moment must "do things" in order to be recognized, then why should the doctor float along too passively, like a chip in an eddy, to attract even the attention of his friends between times of routine services. To have folks say: "We have a good doctor, he knows his worth and wants his honest money," is a better advertisement for him than to be never mentioned because he is never paid.

In his financial estimate, the physician must remember that he is not a mere driver of his horse or automobile, entitled to the wage of the common mechanic, at so many cents per hour: but the physician needs always to remember that he is dealing with the emergencies between health and illness, life and death of the human being on which must stand or fall all the happiness and prosperity and availability of his patron. This service is money's worth beyond compute. The skilled protector of human life is never paid—unless he imposes on the ability of his friends. A lady of acute perception lately said to the writer: "Dr. Blank has done wonders for a difficult case in my house, but he will never make any reputation while he only charges twenty-five cents for his office fee." That is the estimate this doctor is putting upon his personal values! He is relatively poor—he will stay poor because of the impression he makes of his value. He is competing with competitors—but gets no more business at half or quarter price than he might have at decent values for the quality of the service required. The doctor who charges twenty-five cents for a professional service is no more likely to receive his pay than if his price was one dollar—unless his patient is poor but honest, and has provided herself in advance with a silver offering of a quarter! There is a class, and a very cheeky one, who systematically defraud the physician, because his service is naturally a trust service. A woman of penny-pinching cunning came to my office a month ago. She was near fifty years of age and pregnant unexpectedly. Said she anxiously desired to talk with an experienced physician about her serious situation, and would pay him for his time. At this stage of her act she adroitly exhibited a dollar bill in a fumbling way from beneath her cape. My glance of it assured me that my time would not be ruthlessly wasted. I went wisely and patiently over her situation with encouraging hope. She had many questions to be explained. When she had satisfactorily finished on all points and obtained my assurance that I believed she would be safely delivered of her belated child after eight years in "change of life," she rose to depart. As I looked at her expectantly, with great complacency she said: "Doctor, I did not bring my pocketbook along with me, I will send a dollar to you as soon as I get home. Can I not leave it with your wife, if you are not in at the time?" "Certainly," I said, as a gentleman. But I have never seen that woman since or her dollar! She was an old door-knob fraud! But what then? She had interrupted me when engaged on an earnest contribution for the New York Medical Times, a noble and worthy publication of highest standing—and that woman simply mobbed me in my legitimate service. Is it not more than simple justice that in their financial problem physicians come mutually, as protectively as possible, to a knowledge of who they are that constitute the class of bums on the doctor's sense of humaneness? The present is the time to remember that the finances of the physician are as important as are the finances of the banker, the stockholder, the skilled mechanic. Are our rights inferior to the rights of the merchant, the blacksmith, the bookseller, the lawyer, or the minister? There is no reason why so many physicians should supinely drift along with the troubled current of close and adverse circumstances. A Philadelphia doctor of considerable standing was sued yesterday by his wearied wife because he did not have for her or had not enough money to feed the

family! But we must discard petty jealousies. The despicable practice of some physicians, who hope to win practice by maligning the qualifications of other physicians, has had no other than pernicious effect on the pecuniary morale of the public. "A house divided against itself cannot stand," is not a maxim for a day, but is an eternal truth.

THE PHYSIOLOGY OF NUTRITION. A COMPARATIVE STUDY

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

PART I.

OF the five or more properties with which living protoplasm is endowed: that which relates to nutrition or the absorption within itself of nutrient material and, therefore, which directly concerns the assimilation of the same, is undoubtedly first in importance. In the lowest forms of life, composed as they are of unicellular organisms, and in which no specialization of function has as yet obtained, this is accomplished by all parts thereof, that is, food is taken into its substance at any or all parts, and circulates throughout its whole substance in equal measure. Two great series of nutritional activity is manifest in organic structure, and the dividing line between the two, viz., plants and animals, is largely that of the manner, or way, in which this is possible, rather than the material absorbed; for, as we saw in a former essay, plants can take up the carbon, oxygen, and nitrogen necessary to their growth from mineral compounds which are soluble in water. Plants can also take their nitrogen in the form of ammonia or nitrates, and their carbon in the form of carbonic acid, consequently they require no mouths or digestive apparatus; and their food being soluble in water they absorb at all or many points of their surface. There are in all the higher plants two distinct currents, that of the ascending and that of the descending sap, and the former of these two fluids should be compared rather with the chyle than with the blood of animals, indeed it being plainly evident to the student that the perfected structure of circulating fluid as we find it in man (the highest type of organism) finds an exact and corresponding counterpart, at all points in that other great series, viz., plant or vegetable structure, and yet, as needs no comment, at all points differing. The ascending sap consists principally of water which is imbibed with inorganic substances in solution by the delicate tissue at the soft extremities of the root fibres, the ascending current being entirely regulated by the demand for fluid occasioned by the action of the leaves. The descending sap consists of fluid having undergone a preparation or elaboration in the leaves, which adapts it to the nutrition and extension of the structure, and to the formation of the various secretions of the plant. A great part of the fluid of the ascending sap has been lost by exhalation, and the remainder thus concentrated receives a large additional supply of solid matter through the agency of the green cells of the leafy part which takes in carbon from the atmosphere, so that it now receives or includes a considerable amount of gummy matter, in a state prepared for being converted into solid tissue as well as other numerous compounds. Now this elaborated sap is then conveyed into various parts of the system through the agency of a network of vessels which takes its origin in the leaves and extends along the branches to the stems and roots, chiefly in the bark of those parts. These vessels being strictly analogous to the capillaries or smallest blood vessels of animals, but differing from them in this, that the cappillary network of animals communicates on either side with larger trunks, being formed, in fact, by the interlacement or anastomosis of their minutest branches, while the network of nutritive vessels in plants is everywhere continuous with itself, not having any communication with large vessels, so that the fluid prepared in the leaves commences a circulation there which is continued on the same plane until it has found its way to its remote destination in the roots. From these continuous vascular tubes which run uninterruptedly, we might say from top to bottom of all vegetable life, or from leaf to root, and which turn neither to the right nor to the left, that is, devoid of all collateral circulation, as in higher animal life, a condition of the circulatory system very similar to this exists in several of the lower animals, in the very lowest no blood vessels are required, for the same reason that no sap vessels exist in the lowest plants, viz., because every part absorbs and assimilates nutritive fluid for itself, each part having retained for itself that primary function of the individual cell, absorption and assimilation; so that it does not require a supply from vessels. As in the seaweeds the whole surface is nourished by direct absorption from the fluid in contact with the external surface, every part of which is endowed with the same absorbent power, so that in the Polyps we find that the whole surface is nourished by direct absorption from the internal surface, which forms the lining of the digestive cavity. Thus no circulation is necessary in these simple animals, either for the nutrition of their tissues, or for the aeration of the fluids. In the lower Entozoa or parositic worms we have a digestive cavity channeled out in their soft gelatinous tissues, and from the walls of this the nourishment is drawn by the several component parts of those tissues without the mediation of vessels, even the embryo of man in its early condition showing the stages through which it has been evolved by repeating this very type of structure, and consisting of an aggregation of cells, each of which absorbs for itself from the nutritious fluid with which it is surrounded; and therefore going through all its functions independently of the rest. Proceeding now a step higher, we find the first appearance of proper vessels in the higher Entozoa and in the Acalephæ of Jelly Fish, these vessels take up the nutritive fluid from the walls of the digestive cavity on which they are spread out, just as roots of plants do from the soil, they then unite into trunks by which the fluid is conveyed to the more distant parts of the structure in the same manner as the ascending sap is conveyed to the leaves, by the vessels of the stem and branches, and these trunks again subdivide and form a network of capillary vessels which are dispersed through the several parts of the fabric; some of them being very abundantly distributed upon a portion of the surface which is particularly destined to perform the respiratory function. Through these capillary vessels the fluid seems to move in very much the same manner as through the system of anastomosing vessels in plants, that is, its motion

is due rather to forces which are developed during its circulation than to forces derived from the contractile power of a propelling organ, but there is this difference, that after having traversed the minute vessels and yielded up to the tissues a part of the solid matter which it contains, the fluid is collected again by other trunks which convey it back to the point from which it started; there it is mingled with the fluid that has been newly absorbed, and with that which has undergone aeration, and is then distributed as before through the general capillary network of the body. But as we ascend the animal scale, we find that provision is made for a more regular and vigorous flow, or circulation of the blood, than that which exists in the lowest classes. Thus in the Echinodermata a portion of the principal vessel is peculiarly endowed with contractile power which may be seen in constant pulsation like the heart of the higher animals, alternately contracting to propel the fluid it contains through the vessels that issue from it, and then dilating to receive a fresh supply from the vessels that pour their contents into it, a similar provision being visible in the lower tribes of worms in which this contractile vessel lies along the back propelling the blood forward by a sort of peristalic movement through trunks which pass out at its anterior termination and receiving it again after it has circulated through the system by vessels which enter at its posterior extremity. In the higher order of worms, in the Myriapoda, or Centipede tribe, and in Insects, we find this dorsal vessel divided by transverse partitions, containing valves, into separate cavities, which answer to the different segments of the body, each of these being at least to a certain extent a heart to its own segment receiving and propelling blood by trunks which open into it, but at the same time participating in the general circulation, a large portion of the blood being poured into the hindermost segment, transmitted forwards, from cavity to cavity, through the valves which separate them, and at last propelled through trunks, that issue from the most anterior segment. In some of these trunks we find that two or three pass round the œsophagus and reunite below it so as to enclose it in a sort of collar and then form a main trunk by this union, which runs backwards along the under surface of the body and which distributes the blood to its different organs by lateral branches, these subdivide into a capillary network and the returning branches or vessels which originate in this network pour the blood which has circulated through it into the posterior cavity of the dorsal vessels. Still it is very evident from the observation of the circulation in those species in which the whole process can be distinctly traced under the microscope, that the contractile power of the dorsal vessel is far from sufficient of itself to sustain the circulation, and that the movement of the blood through the capillary network, is in part due to forces developed during its progress, being often retarded, or accelerated, in particular spots, without any visible change in the propelling force of the central organs. Now in most of these animals there are distinct organs of respiration confined to some one part of the body and we often find that the vessels which convey blood to them are furnished with distinct contractile portions like so many supplimentary hearts for the purpose of propelling the blood through them more energetically. Just in proportion as we ascend the series of articulated animals do we find for the most part a more vigorous and regular circulation both for the nutrition of the system and for the transmission of the blood through the respiratory organs, but there is an exception in the case of insects, for in this class the circulation is much less vigorous than it is in other articulated animals of similar complexity of structure, although we might have anticipated that the extraordinary activity of their movements would necessitate a corresponding rapidity in the circulating current, especially for the purpose of conveying an extraordinary supply of oxygen to the muscular and nervous systems, but this is provided for in another way, the air being conveyed to these tissues not through the blood but by direct transmission through the minute ramifications of the air tubes, or tracheæ, which penetrate the very smallest organs of the body. Now it is a very striking analogy that the circulating apparatus in the embryo of the higher animals at a period just a little advanced beyond that just alluded to, presents a similar structure, for the heart at the time of its first formation seems like a mere dilatation of the principal vascular trunks, having thickened walls in which after a time muscular fibres begin to be developed, and the contractile power manifests itself. The pulsation of the heart, however, does not seem to extend its influence immediately through the vascular area, the capillary circulation in which remains for some time in great degree independent of it. There is no resemblance in form, however, between the dorsal vessels of insects, and the incipient heart of the higher animals, since the latter is never much prolonged and speedily becomes doubled upon itself, and its first division into cavities is merely for the purpose of separating its receiving portion or auricle, from its propelling portion, or ventricle; nevertheless, the general condition of the circulating system is much the same in the two cases, and in function is further alike in this, viz., that it is not always easy to show that the vessels have distinct walls as they frequently seem like mere channels excavated in the tissues. Again as we approach the class of Mollusks we find that the moving power of the circulation is more concentrated in the heart than is the above, for this organ seems no longer like a mere dilatation of the vascular trunk, but is a distinct sac with muscular walls, usually having at least two cavities, an auricle, and a ventricle, with the course of the circulation as follows, viz.: The blood expelled from the ventricle of the heart passes along the main systemic artery or aorta, which distributes it to the body at large. It is then collected again and transmitted to the respiratory organs in which it is exposed either to the air contained in the surrounding water, or (as in the terrestrial mollusks), more directly to the atmosphere, and from these it is returned to the heart to be again transmitted to the system. Thus we see that the heart of these animals receives, and impels, aerated blood, and that its office is to send that blood to the capillaries of the general system. Indeed there is a very curious phenomena to be observed in the circulation of some of the lowest mollusks, namely, the continual reversal of the course of the current, the heart in these animals being much less perfectly formed than in the higher classes, which seems more like the contractile dilatation of the principal trunk

which is the sole representative of that organ in the Echinodermata. The circulating fluid is sometimes transmitted first to the system and afterwards distributed to its different parts by the ramifications of the main artery, it meanders through the channels excavated in its tissues and then flows towards the respiratory surface, after passing over which it returns to the heart, but after a certain duration of its flow in this direction, the current stops, and then recommences, in the contrary direction, proceeding first to the respiratory organs, and then to the system in general, so that, it would seem as if in this, one of the lowest forms of animals possessing a distinct circulation, the central power were not yet sufficiently strong to determine the course which the fluid is to take, so that it undergoes continual vacillations. So much, then, for the great class of invertebrates, as likewise for vegetable structure as regards the starting with fishes, we have as in mollusks, a heart circulation.

RECENT ADVANCES IN HANDLING TYPHOID FEVER.

BY A. N. ULRICH, M.D.

LAVROFF operated upon thirty-three patients with perforative peritonitis complicating typhoid fever, and of these only four, or twelve per cent., recovered. This percentage is lower than those reported by other authors, but Lavroff thinks the percentage of recoveries after these operations is very small, but whether this mortality from perforative peritonitis is due to the typhoid infection itself, or to other causes, cannot be definitely settled as yet. In the patients who recovered there had been an extraordinarily good condition before the operation, including a good pulse, and absence of collapse. In those patients who died, even when the operation was performed immediately after the operation had taken place, there was a marked collapse, a small rapid pulse, great depression, frequent vomiting and extreme abdominal pain, but these symptoms should not deter operating, but, on the contrary, should hasten it. There is scarcely a modern surgeon who is opposed to operative treatment.

Smallman tested the feasibility of preparing a bacteria-free and fluid vaccine, of standardizing the same, not in terms of bacilli, but in terms of the soluble immunizing substance it contains. The material was obtained with the aid of the cold grinding method of MacFadyen and Rowland, the typhoid organisms being grown on the surface of agar bottles, at blood-heat, for 20 hours. The growths were washed off with salt solution and the bacteria spun out in a high speed centrifuge; these spun-out bacteria were reduced to the consistency of a pasty mass on the surface of a Chamberlain filter, and triturated at the temperature of liquid air; then the mass was taken up in salt solution and centrifugalized. The cell juice was equivalent to a 10 per cent. solution of the intracellular constituents. This "typhoid cell juice," contained from .15 to .2 per cent. of solid matter, and was injected subcutaneously into guinea pigs, and after varying intervals of time the protection afforded was tested by the intraperitoneal of virulent "typhoid cell juice." The smaller dose had the same protective effect as the larger, even after a period of eleven days, while a protective effect was demonstrable with a dose of 1/1000 cc. at the end of seven days. Then a series of animals which had been inoculated with 0.25 cc. of the cell juice was tested on the tenth day after injection, and out of 5 guinea pigs 4 survived an injection of from 3 to 5 lethal doses of the typhoid bacillus. Smallman believes that a bacteria-free and fluid typhoid vaccine can be prepared by the mechanical method employed, and that a very small amount of the soluble constituents of the typhoid organism is necessary for active immunization.

Memmi, studying the conditions under which typhoid bacilli appear in the blood of patients, found that the frequency was proportional to the severity of the disease; the best time to find this germ in the circulation was the period between the end of the first and the beginning of the third week, but in severe cases the bacilli were found later also. These bacilli isolated from typhoid blood possessed only limited motile powers, and at times were found united into groups, showing the high agglutinating powers of the blood. The method of large dilutions is well adapted for the isolation of the typhoid bacillus from the blood, and no relation exists between the appearance of the typhoid bacillus and the presence of the Gruber-Widal reaction. The typhoid bacilli brought into contact with typhoid serums show feeble agglutinatinf power, increasing with the length of time the germs are cultivated outside of the body. There was not much difference, however, between the bacillus of typhoid fever grown in the laboratory and one just isolated from the blood of a patient as regards the Widal reaction. Other germs besides the typhoid bacillus were found, especially the streptococcus and the diplococcus of Talamon Fraenkel, when the case was complicated by pneumonia. Typhoid without intestinal localization is not so rare as has been hitherto supposed.

Typhoid bacilli are quickly killed by human blood and yet typhoid bacilli increase in this disease in this medium; this phenomenon is explained by Hektoen as possibly due to the typhoid bacillus neutralizing, by the production of its destruction, the complement in the blood serum. He emphasizes the facts that pneumococci are demonstrable in the blood in certain cases before the primary symptoms can be detected, and that the subcutaneous or intraperitoneal injection of pneumococci into rabbits may give rise to foci in the lungs resembling the lesion of lobar pneumonia, and that injection of pneumococci into the bronchi causes a rapid absorption of cocci into the blood; the destruction of pneumococci being largely due to leucocytes, since the blood serum itself is without destructive effect and high leucocytosis is indicative of a favorable prognosis. The leucocytes seem to exert a defensive rôle in pneumonia, and it seems that alcohol and ether have a paralyzing effect on them, as shown in rabbits.

In scarlet fever, the streptococci are in the majority of cases demonstrated in the blood; whether they are the cause of scarlet fever or not, it may be said that there is a very general invasion of the body in fatal cases. In practically all the cases of scarlet fever there is a great increase in the number of streptococci in the blood. Against the theory of their being the essential germs may be cited the absence of any general invasion of the body by the streptococci in the so-called foudroyant cases of scarlet fever. It is impossible to differentiate the streptococci which occur in scarlet fever from other familiar streptococci, and while one attack of scarlet fever gives rise to a lasting immunity, there is no evidence that an attack of scarlet fever produces any immunity to streptococcal infec-

tion. In smallpox, diphtheria, and measles, there is also frequent streptococcal invasion in the blood, yet these diseases cannot be said to be due to streptococci. He concludes that while in the cases of the majority of children dying from scarlet fever the death is due to streptococcal infection, there is still no strong evidence of a direct etiologic relationship between scarlet fever and streptococci, even though the latter are of such paramount importance in the disease. There is a great need of an efficient antistreptococcic serum; there is possibly too little care exercised against the diffusion of streptococci in scarlet fever cases in the hospitals, severe cases being placed alongside the mild ones and the chance of further streptococcic invasion in the latter being thus favored.

Since the introduction of the aloin test for the detection of traces of blood in the feces by Rossel, it has been used in the detection of hemorrhage in gastric carcinoma and ulcer, while in Naunyn's clinic this test has been used for some time in connection with typhoid cases. The result of the test as described by Patracchi states that of eighteen cases tested, eight showed traces of blood at some stage of the disease, while in the majority of cases the positive test was observed during the second and third weeks of the disease, when hemorrhages apparent to the naked eye are likely to appear. In four cases large hemorrhages occurred, generally three or four days after the occult hemorrhage was detected. Most of the eight cases were severe, though the autopsies on three of them showed that the intestinal lesions were not unusually extensive. Petracchi thinks that the occurrence of intestinal hemorrhage in typhoid is the result of the character of the infection rather than of the extent of the intestinal lesions. In some cases where the presence of occult hemorrhage was detected, the hemorrhage was accompanied by a distinct increase in the rapidity of the pulse; in four cases in which this occurred large hemorrhages resulted in three. The combination of occult hemorrhage with increased rapidity of pulse rate is a valuable index of a possible severe hemorrhage, and it seems reasonable that if by this test we can foresee the probability of intestinal hemorrhages, we will be able to reduce the mortality from this source.

While Edsall recognizes the possibility of the milk infection origin of typhoid, he believes that there is a further group in which the effects of bad milk are very often overlooked, chiefly because they are obscured by other factors present. There are cases occurring principally in persons on a milk diet, especially in those with acute infectious diseases in which the symptoms are caused by the milk used, but they are not severe enough to arouse a suspicion as to their cause, for the milk does not itself produce grave and evident infection, but it succeeds in making worse a condition that is already more or less wretched. In feeding typhoid patients only pasteurized milk, he found of 92 case of typhoid, 8 patients had diarrhœa on admission: in 5 of these it subsided in three or four days. Only 4 patients developed diarrhœa while under treatment, and one of these, a severe case, died of hemorrhage, and the autopsy showed numerous ulcers in the colon. According to Edsall, a diet composed almost exclusively of good milk is the best for most cases of acute infectious disease, especially of typhoid fever.

This same authority has studied the condition of the lymph glands in typhoid fever; in 60 cases he obtained satisfactory notes in about 36; of these thirty-six he observed in 25 the occurrence of glandular enlargement during the disease. In 4 the conditions were doubtful, and in 7 there were no demonstrable changes; while in several cases of relapse the changes in the gland could be followed, and were found even more prominent than in the primary attack. Generally the enlargement developed in the latter part of the disease, and in a number of cases the first definite enlargement was noted during early convalescence. Edsall believes that by carefully observing the glands some diagnostic points might be learned; thus in cases of tropical malaria, the glands of the patients observed showed no enlargement, while in acute pneumonic tuberculosis there was no general enlargement. Unfortunately the enlargement in typhoid tends to appear late, and would be of little diagnostic value on this account, while the degree of glandular enlargement may be made to influence the prognosis as it occurs most markedly as convalescence is approaching, and the most marked enlargement of the gland appeared in several of the mildest cases. The chief interest, however, is in the diagnosis, for glandular enlargement, unless very marked, cannot be considered a strong point against typhoid, for enlargement to the degree usually see in syphilis is not very uncommon in typhoid fever, while a milder degree is often noted.

Richardson reports a series of 22 cases of typhoid treated with the filtrate of a bouillon culture of the typhoid bacillus and he reports that in this fluid is an agent of therapeutic value. The filtrate of a typhoid bouillon culture grown for six weeks at the body temperature has little, if any, toxic power, and two cc. injected intraperitoneally into guinea pigs produce a certain amount of immunity, not only in the guinea pig, but also (subcutaneously) in the human subject. Typhoid patients may react quite sharply to such injections, the reactions being characterized by a chill, rise in temperature and increased frequency of pulse and respiration; this reaction occurred at least once in one-half the cases thus treated. Experience thus far seems to show that the best results are to be obtained in cases not yet too severely damaged by the typhoid poison, while the best conditions for this treatment should be seen in cases of threatened relapse, and perhaps, in the beginning of the original disease when the natural immunity is still exhausted. Little good should be expected; indeed, harm might be done if an individual already hyperintoxicated were subjected to the effects of an exaggerated destruction of bacilli; in Richardson's series 22 cases there occurred 2 deaths, one from pulmonary embolism and one from hemorrhage, for which he does not hold the treatment responsible. The majority of the cases did not come under observation until the disease was well advanced, but 5 early cases were especially interesting as showing what seems to have been a shortening of the disease, the injections being begun on the seventh to the twelfth day, the temperature falling to normal on the twelfth to the twentieth day, or within from five to twelve days after beginning the injection.

Marchoux was sent to Senegal, in 1896, to make a special study of typhoid and paratyphoid; in a recent article, he states that he found typhoid fever, as it occurs in temperate climates, extremely rare in Senegal, and its place is taken by paratyphoid infections, which are usually mild. When typhoid fever is im-

ported it assumes frequently a severe form, thus in one epidemic from imported typhoid there were 35 deaths among 170 typhoid patients. The paratyphoid affections are very common in tropical countries, and probably include the pseudo typhoid fevers, the "continuous malarial" fevers and the "mountain typhoid" noted in Brazil. The success of copious irrigation of the intestines in all these affections seems to confirm their intestinal origin, and that the large rather than the small intestine is involved. He did not detect any connection between these affections and drinking water, but in one epidemic of typhoid the water-borne source of infection was clearly evident and demonstrated that prophylaxis of typhoid can be accomplished in the tropics as well as in temperate zones.

As to perforation in typhoid, parents, attendants or nurses who have charge of the patient should be instructed to notify the physician when any sudden, severe or unusual pain occurs in the abdomen. As Hays points out it is well to have a card with the symptoms of perforation on it; to be given the nurse or attendant. Emmerling instructed one mother to notify him in case any sudden pain occurred; Hays saw this patient in consultation exactly two hours after the onset of pain, and the diagnosis was made at that time, so it is feasible by following this plan to diagnose perforation early and to have prompt surgical intervention. Nothing is gained by waiting and even if no cause is found for the symptom, it is better to err on the safe side than to lose lives by waiting for more pronounced symptoms. The prognosis of perforation is always serious, more so than in other perforations, for this complication comes in typhoid fever at a time when the normal powers of resistance are weakened by two or three weeks of previous illness. Recovery depends on several factors, some of these being the physical condition of the patient before the advent of the fever; the character of the typhoid infection, whether it is mild or severe, and other previous complications; again the organisms found in abdominal fluid after perforation are important. The time of operation after the occurrence of the perforation is vital too. Patients have the symptoms of perforation and yet recover without operation, but their number is small, and no one can claim that more than 5 per cent. recover without operative interference. Recovery without operation can be subdivided as follows (Hays): First: those having abscess formation. Second: those without abscess formation. Recovery at times occurs in cases of the first division. The abscess cases are usually the result of ulceration and perforation of the appendix, as the appendix is a more fixed part of the bowel than any other in which perforations take place and so frequently cause of abscess formation. Of the second division, in which the patients simply recover, Hays believes that these are not cases of perforation and that the symptoms present are due to some other cause. When perforation occurs in any part of the intestine except in the appendix, they very rarely recover without operative interference, and while it is possible, it is not likely. The only treatment is operative. Prompt surgical intervention should be done early unless there is a great lowering of the temperature, when time should be given for the patient to react. When the operation is done within six hours after perforation occurs it is the belief of the good surgeon that a recovery of 50 per cent. will follow. The closing of the perforation is naturally the first thing to be done; there is usually some difficulty in this procedure because the bowel is friable on account of the great degree of inflammation. Hays first used a purse string suture, over which he introduced one or two tiers of continuous Lembert sutures, always of silk. The Lembert sutures should be introduced transversely to long axis of the bowel; in his last four cases, after closing the perforation, he used another procedure which has saved the lives of two, possibly of three, of the four patients. This procedure in dealing with the closed perforation of the intestine is original with me, although it has most likely been made use of by other surgeons. It consists in simply anchoring the bowel at the site of the perforation to the peritoneum at the upper angle of the incision through the walls of the abdomen. This should be done so that all the sutures introduced to close the perforation are extraperitoneal. This has great advantage over the old method of returning the bowel to the abdomen.

Stokes and Fulton state before recording their observations that a brief record of the work which has been previously performed by others in treating cases of typhoid fever with a curative serum is interesting. Chantemesse prepared by filtering the fluid cultures; this serum in doses of .01 of a cubic centimeter prolonged in lives of guinea pigs injected with varying doses of the soluble filtrate; this serum is antitoxic, since its injection renders animals more resistant toward the soluble poison. Chantemesse found that the general fatality from typhoid fever in the Paris hospitals was about 19 per cent. but in 186 cases which were treated with the serum the fatality was only 3 per cent. Naturally, he attributes this reduction to the use of the serum and the seven fatal cases had either peritonitis, hemorrhages or perforation. Tavel of Berne has also used an immune serum in the treatment of typhoid fever, prepared by incubating 1.5 liters of a bouillon typhoid culture for two weeks, and then adding 0.5 per cent. of carbolic acid, which kills the bacilli and releases the intracellular poisons. Two horses were injected with gradually increasing doses of this bouillon until 150 cc. could be taken. Later mixed dead cultures of four different races of typhoid bacilli were used, and at last living mixed cultures were injected. The serum was thus made polyvalent. Tavel reports 4 cases in which he used from 3 to six injections of his serum; in all of these cases the plateau stage of the fever was great lessened, and this was rapidly followed by the stage of decline. The pulse and respiration also fell with the temperature, and no unfavorable symptoms were noted. These 4 cases reached a normal temperature in 18, 20, 18, and 13 days respectively. He noted a fall of temperature often 24 hours after the injection of the serum, but combated a future rise of temperature by further injections.

Stokes and Fulton's series included 23 cases with 2 deaths; but autopsies were not obtained in either of the fatal cases. Case 1. The first was a boy of 14, who had been in the hospital 10 days when the injections were begun. He received 8 doses of 10 cc. each in 4 days. After the serum treatment began the boy developed a bullous dermatitis. The injections appeared to cause some decline in temperature, but in the middle of his third week in the hospital he developed otitis media followed by streptococcus septicemia, which proved fatal. The other fatal case was

seen in private practice. Case 2. Man, aged 44, overfat, a civil engineer. He was seen in the beginning of his attack, having a temperature of 100 degrees. Two days later his blood gave a distinct and prompt Widal reaction and on the following day serum treatment was begun; his urine was not examined before the first dose of serum was injected, but was found to contain albumin and casts immediately after. He received in 5 days 6 doses of serum, 90 cc. in all. After the third injection of serum the temperature began to drop and we were inclined to think that good results were to follow, but the temperature rose to 103 degrees on the thirteenth day in bed and the fifth day after the last injection. Intestinal hemorrhages appeared on the thirteenth day in bed. There were several copious losses on this day. Two days later hemorrhage reappeared, and on the night of the thirteenth day in bed he died. Among the twenty-one cases ending in recovery, there were fifteen in which Stokes and Fulton considered that the influence of the serum contributed to the favorable result. The cases in which no effect for good or evil was observed were six in number, and one of these is illustrated by a temperature chart. One of the distinctly favorable cases was that of a young married woman of twenty-three, who was six and a half months' pregnant. She aborted on the evening of the day when the first injection was given, but completed her defervescence in fourteen days. One of the cases admitted to Johns Hopkins on the fourth day in bed was defervescent in ten days after admission or on the fourteenth day in bed. No unfavorable effect on the kidneys or blood were reached by urinalysis or blood in any of the cases, while the average period from admission to defervescence was in thirteen favorable cases, 12.6 days. The laboratory experiments coincided with the clinical observations that the immune hog serum is not hemolytic for human blood. In one or two instances these investigators encountered discouragement from associated clinicians who feared injury to the kidneys or hemolysis from the use of such large amounts of serum. In one case they stopped the serum in deference to the suspicion that it caused collapse; the patient was a sailor who came to the hospital in an exceedingly feeble state, having had diarrhœa on ship board for two weeks, being exceedingly depressed after each bath. The use of serum was, however, resumed after an interval of days, though tubbing was not resumed. The case appeared to be one of those favorable to the use of the serum. They believe that by the use of the serum the febrile period may be shortened, and the daily variation may be favorably reduced.

Ecthyma requires for its treatment a wholesome, nutritious diet, with exercise, bathing and fresh air. Shoemaker (*Med. Bull.*, Nov. 1905) prescribes in addition, ℞ arseni trioxidi gr. i; ferri pyrophosphatis, et quininæ sulphatis, aa. gr. xxx. M. Ft. capsulæ No. xxx. Sig. One capsule four times a day. Locally: The crusts should be removed with oil, or water dressings, or poultices, and the parts cleaned with an antiseptic wash—either a one per cent. solution of phenol or a solution (1—1,000) of corrosive sublimate. A weak mercurial ointment, of ten grains of calomel to the ounce of benzoined lard is to be used subsequently as a dressing.

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KIDNEY.

BY GEO. R. REYNOLDS, M.D.

PART I.

THE diagnosis of the renal tuberculosis in its early stage is, as elsewhere, of vital importance; especially is this true now that surgical interference is possible.

The renal tubercles found in cases of general miliary tuberculosis have usually no clinical interest in this study, for the kidney is not one of the points where tubercular localization is most intense, and generally renal tubercles are but little advanced when death takes place from the disease in other organs. In this case, they present no symptoms which are perceptible among the much graver ones attending the progress of the disease elsewhere. In the disease known as tubercle of the kidney, caseous nephritis, or "nephro-phthisis," masses of caseous material are deposited in the renal parenchyma which may soften, break down, and communicate with each other and with the calices and pelvis. In some cases it is probable that the disease originates in or immediately underneath the mucuous membrane of the urinary passages. This process of breaking down continues much in the same way as that of a phthisical lung, until the kidney becomes little more than a hardened, irregular, knobby shell enclosing a ragged, ulcerated cavity, with thickened, pus-secreting walls and filled with pus, more or less blood, and débris of kidney structure and tubercle. In the remaining renal's substance it is not unusual to find miliary tubercle. If obstruction of the ureter exists, a pyonephrosis may exist in addition. This affection may include two processes, differing in pathology and etiology and to some extent in clinical history; true tubercle may originate in the kidney as a result of either tubercle or cheesy inflammation elsewhere, as in the lungs, bodies of the vertebræ, or scrofulous glands, no marked symptoms being noted until the process of softening and breaking down has reached the mucous membrane of the pelvis. Renal tuberculosis sometimes succeeds, as a more local invasion, to tubercle or cheesy inflammation of the urinary passages, and in this case the symptoms appear simply as aggravations of those depending upon ureteritis and pyelitis. Renal phthisis is seldom an independent disease, often associated, besides the affections already named as standing in etiological relationship with it, with cheesy inflammation of the testicle, vesiculæ seminales, and less frequently of the ovaries. The diagnosis of tubercle in the kidney before it has reached the pelvis is often impossible. Pain in the back or slight albuminuria, as has been already stated, is of no diagnostic value except as pointing to some renal irritation, as to the cause of which it tells nothing. In the presence of tubercle elsewhere it might be regarded as suspicious. After cavities have become connected with the pelvis or have extended from it, the symptoms become more marked. In the urine are to be found pus, some blood, epithelium of the urinary passages and often of the kidneys, in many cases in the form of casts; and it is claimed that masses of caseous matter as large perhaps as the head of a pin may be found, which will of course make the diagnosis almost a matter of certainty. If the urine containing such a deposit is acid, it is almost certain that the lesion is mainly in the kidney and that the bladder is but slightly if at all affected; the bacillus of tubercle has been

found. The presence of this bacilli will not only testify as to the presence of the clinical condition known as phthisis of the kidney, but will also make it sure that the affection depends upon tubercle in the strictest pathological sense, and will influence the prognosis accordingly. Inoculation of purulent sediment from the urine of a patient suffering from tuberculosis of the urinary passages has produced tubercle in the iris of the rabbit. This procedure has been suggested as a means of diagnosis as to the character of a chronic catarrh of these passages before the appearance of tubercle elsewhere. If pyelitis have already been present, the change in the appearance of the urine will be less characteristic, but there may be a marked aggravation of symptoms when the contents of softened masses are added to the secretions of the mucous fluctuation in the quantity of débris present from day to day. Urinary fever of the hectic or subcontinued type, with anorexia, nausea, dry tongue, and diarrhœa, is present. In some cases the enlarged and irregular kidney may be detected.

Tubercle may began in any part of the urinary tract primarily except the ureters, and one out of eighteen cases of tuberculosis begins in the genito-urinary organs. Camayo states that in most cases tuberculosis disease of the urinary system is primary in the kidney: and James Israel expresses his conviction that a primary disease of the kidney is very much more frequent than is supposed. Fenwick states that the kidney and ureter are primarily affected in ten per cent. of cases of urinary tuberculosis. But it is chiefly in numerous and valuable papers by Tuffier, and especially in a recent pamphlet, that we find the strongest evidence and most strenuous arguments, hardly admitting of denial, brought forward. Tuffier, without hesitation, affirms the existence of a primary renal tuberculosis. The classification given by him of the various forms of tuberculous disease is as follows: (1) Miliary tuberculosis, (a) nodular infiltration with or without cold abscess; (2) Tuberculous infiltration, (a) tuberculous pyelonephritis; (b) massive degeneration of the kidney; (c) tuberculous hydronephrosis. In both primary and secondary diseases, the condition of the ureter, due to the spread of the disease upwards or downwards, is, Tuffier insists, of chief importance, but frequently overlooked. When the ureter is permeable or enlarged—an infrequent condition—the kidney enlarges little, if at all. When narrowed, there results a pyelonephritis with distension, or a pyonephrosis with intermittent emptying; if obliterated, there develops either a massive degeneration of the kidney or a tuberculous hydronephrosis. Diagnosis is often difficult, but great advance has been made since Simon, Pawlik, Nitze, Casper, and Kelly have perfected the methods of ureteral catheterization. An S-shaped arrangement of tubercle bacilli has been asserted by Frisch to be peculiar to kidney disease, and other observers believe this sign is of importance. In doubtful cases it has been suggested that an exposure of the kidney and the removal of a fragment of it for subsequent microscopical examination, might be a valuable aid in arriving at a certain diagnosis.

The urine may be a very diagnostic sign, and a careful examination of the secretion should always precede the introduction of any instrument, as emphasized by Neuman.

It is well to remember that polyuria is one of the earliest signs in renal tubercle, resulting, no doubt, from the hyperæmia due to the irritating properties of the bacilli. It is more likely to be noticed when albumin is present; but this albuminuria is contingent upon the discharge of inflammatory material in the urine, appearing when the tuberculous lesion communicates with the urinary tract, but is wanting in the case of a tuberculous nodule buried in the renal parenchyma. Hæmaturia is usually slight, but hæmorrhage may occur, and may even be profuse, long before other signs of tubercle appear. These premonitory attacks of hæmaturia may be extremely baffling, and it is only by repeated and careful examinations of the urine that their true significance may be determined. In these early attacks the urine contains no tuberculous débris recognizable by the naked eye or microscope, and the characteristic bacilli may only be revealed by cultivation or inoculation, but as the disease progresses, the characteristics of the urine become more pronounced, the albumin increasing in amount, the reaction tends to become alkaline, the urine is opaque and cloudy from suspended pus and mucous, and a varying deposit of granular tuberculosis débris. Profuse hæmaturia is rarely seen in renal tuberculosis. At a later stage the urine becomes increasingly offensive and the deposit more marked. In the prognosis remember that a focus of tubercle limited to one organ or a part of it is more favorable. Cure of small discrete nodules, which become replaced by fibrous patches, may occur. In other cases larger tuberculous masses have become encapsuled and dried up, leaving putty-like masses. These remain quiescent so long as they are undisturbed, but an injury will set up trouble again. The cases most suited for operation are those where the disease is limited to the kidney, being cases of primary tuberculosis of the kidney which has not yet extended to other parts of the urinary system. These are the cases in which diagnosis is of necessity most difficult, but they are the only cases in which operative measures are likely to be of any lasting benefit, and as Newman aptly says: "The medical attendant who makes an early diagnosis in a case of renal tuberculosis, renders a service to his patient as valuable as that of the surgeon, who at a later date, performs a successful nephrotomy or nephrectomy."

Kronlein operated in 51 cases of tuberculosis of the kidneys, which is about a third of all his surgical work on the kidneys, nephrectomy in 34, and the results have convinced him that this is the operation to be preferred in such cases. The affection is much more common in women than in men. In 92 per cent. it was restricted to one kidney, the infection being always by way of the blood, never urogenic. The tuberculosis was solitary in the kidney in only 12 of his 34 cases; in the others the kidney affection was associated with a tuberculous process in the lungs in 9, in the bladder in 12, in a joint in 9, and in 4 the entire urogenital apparatus was invaded. Twenty-four of his 34 nephrectomized patients are still living. Eight died within eight months of the intervention. Nine died with indications of insufficiency of the remaining kidney. Nine of the 10 subjects who died were examined post mortem, and nothing abnormal could be detected in the remaining kidney. He is getting up an atlas on renal tuberculosis, and has collected a quantity of valuable material. He distinguishes between the fluid and the solid form, the latter including the solid caseous and the diffuse varieties. The list concludes with the embolic form, of

which he describes a typical example. The methods of functional diagnosis now in vogue can none of them be implicitly relied on. He regards extirpation of a tuberculous kidney as one of the most successful of all operations.

Fenwick believes that an early diagnosis of renal tubercle can be made by examination of the ureteric mouths by the cystoscope.

Nephrotomy is the operation which, so far, has been most extensively done. It consists in incision of the kidney and drainage to give exit to the accumulated pus and débris, and for a time some benefit follows. Unfortunately the operation does not provide for the arrest of the downward progress of the disease along the ureter; and further, the continued presence of a freely discharging sinus in the loin is a source of pain and inconvenience, if not of grave danger to the patient. According to Guyon, no patient survived the operation of nephrotomy for renal tuberculosis longer than two years. At the most, therefore, nephrotomy must be looked upon as a palliative operation, and should be limited to those cases in which the disease is progressing rapidly; a prolonged and severe operation is impossible. Other indications for nephrotomy consist in the presence of perinephritic abscesses, or a doubtful stress resistance of the opposite kidney; in the majority of instances it is to be regarded as a means of diminishing the fever and improving the general health of the patient before proceeding to the radical operation of nephrectomy. Nephrectomy is the best method of treatment, and is attended with some prospect of ultimate success in proper cases; before proceeding to remove the kidney, it is necessary to ascertain that the disease has not yet invaded the bladder; and further, reliable information must be obtained of the health of the kidney which is to perform the entire urinary functions. Fenwick has shown that the cystoscope here proves of great value in excluding disease of the bladder, in localizing the renal disease, and in giving some idea as to the secretion of the other kidney, but for exact information regarding the latter use the ureteral catheter.

These methods of examination may fail, however, then the suggestion to cut down and examine each kidney from the loin as a preliminary step to a future nephrectomy is a good one, although it is evident that only a few of the patients under consideration will be in a condition to allow of such thorough exploratory measures. Nephrectomy secondary to nephrotomy is more difficult than primary nephrectomy, but very often the condition of the patient leaves the surgeon no choice in the matter. Subcapsular nephrectomy is often found suitable for these secondary cases. Removal of a portion, or sometimes the whole ureter, along with the kidney, is, in most cases necessary, for a troublesome sinus may remain, and, as Johnstone has remarked, the discharge of tubercle bacilli may continue. If the extended operation threatens to overtax the patient's powers of resistance, the ureterectomy may be deferred to some subsequent date. Partial nephrectomy is probably not well suited to tubercular disease of the kidney.

Contract lodge work has been refused by every physician in Trenton, N. J., an agreement having been unanimously signed to this effect.

First aid to the injured eye is the subject of an excellent paper by M. F. Coomes (*Internat. Jour. Surg.*, Dec., '05), who writes from the standpoint of a railway surgeon, having both the welfare of the patient and of the company at heart. The latter consideration does not here concern us, who are here interested only in the therapeusis. If the general practitioner feels himself incompetent he should not hesitate to refer the case to the specialist; and if this advice were ever pertinent, it is certainly so with regard to so delicate an organism as the eye. Everything which enters the affected organ should be sterilized. Many eyes are lost from a simple corneal infection, or infections through other wounds about the eye. Much better were it to suffer pain and inconvenience for a brief time with a foreign body in cornea or beneath the lid, than to have unsterilized substances introduced. Railway surgeons and those who treat many accidents should have always at hand some few articles necessary in the event of an eye injury. These may be contained in a small package with very simple directions. Dr. Coomes presents such a package, in which are: A ℥ii bottle containing gr. x. acid boric; a ℥ss bottle containing gr. x. cocaine; and a ℥i bottle containing gr. v. atropia sulph. By filling these bottles with sterile water one has at hand, a 1 per cent. solut. boracic acid, a 4 per cent. solut. of cocaine; and a 1 per cent. solut. of atropine. Little cotton mops (upon pine sticks), a gauze bandage, 2 in. by 10 yards; three droppers; a small roll of oxide of zinc plaster, ½ in. wide, are all included in this package. A man, let us say, has incurred a rent in the cornea, the iris being engaged between the lips of the wound. Cocaine is to be instilled every five minutes for three doses. The inexperienced practitioner who does not feel competent to clip off the protruding iris will then instil the atropin, place a firm bandage over the eye, and send the patient to an expert. The management of burns about the eye requires great care. Molten lead may have been blown within the lids; as a result the conjunctiva is seriously damaged, so that symblepharon (adhesion of the burnt surface) is to be feared. Here one must use freely carbolized oil (5 drops of the acid to an ounce), or sterile olive, or sterile albolene oil, five drops several times a day. Extensive burns require thorough stretching the lids at night and morning by means of retractors. Or in adults, casts made of sheet paraffin, such as is used by dentists, may be fitted over the eyeball. A hole must be made in the centre of such a cast to prevent irritation of the cornea. This shield can be worn several days (months, if necessary), nor does it have to be removed to cleanse the eyeball. It can be slightly lifted from the orbit, which can then be thoroughly washed and medicated.

A floating hospital for Egypt has been established by the Presbyterian Church, in its extension of missionary work in Northern Africa. Thus will medical aid be given to natives along the shores of the river who suffer from pulmonary and eye diseases. This boat is to be equipped with all modern appliances for the treatment of trachoma and other eye diseases, and will make two monthly trips from the mouth to the source of the Sohat, a tributary of the Nile. The boat is named in memory of James A. Elliott, founder of the North Church, states the *Philadelphia Public Ledger*.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, FEBRUARY, 1906

Life is a train of moods like a string of beads, and as we pass through them they prove to be many-colored lenses which paint the world their own hue, and each shows only what lies in its focus.—EMERSON.

THE THERAPEUTIC PROBLEM.

IT is not difficult to see why the subject of therapeutics has not kept pace with other branches of medicine, if one will but analyze the methods by which the effects of most drugs are studied and the manner in which they are applied in practice. We do not hesitate to say that the limitations which govern the administration of drugs is not grasped and in the great majority of instances they are unscientifically used in the treatment of the sick. They are employed too generally upon a partial or incomplete diagnosis, a condition which would be inexcusable in any other domain of medicine. The careful pathologist makes the fullest investigation and does not ignore a single symptom in individualizing his diagnosis, while the therapeutist is prone to generalize it and fail in the selection of a suitable remedy. With some exceptions the first duty of the physician is to reach a diagnosis, and not until this has been done should he prescribe any medicine whatever. Having made a careful diagnosis of the disease, he should make just as careful search for the remedy.

One of the reasons why therapeutics has languished is because of the lack of definite characteristic data upon which to base our action. It is neither scientific nor correct in principle to prescribe drugs for the names of diseases; they must be selected for individual patients. Quinine fails in some cases of intermittent fever, mercury and potassium iodide are not sufficient in all cases of syphilis, and so it is along the whole line of nomenclature, so that we may truthfully assert that there are no specifics for diseases; they only exist for conditions.

Hare, in his excellent text-book, has treated the subject as if the student were not a skilled physician or experimental pharmacologist, and he has given a chapter on applied therapeutics for the purpose of showing how and why remedies are given, and this is just what is demanded to rid us of that empiricism which is the root of therapeutic evil. It is not sufficient to know remedies and doses by heart, with little idea as to what they are to do. A knowledge of when a remedy is indicated is one of the most important facts of therapeutics. As Hare truly says, a physician may know that ammonium chloride is a remedy in bronchitis, but he must know the exact stage at which it is to be employed, or that digitalis does good in cases of cardiac disease, but fails to recognize the fact that it is only when compensation is lacking that the drug is needed.

The veteran therapeutist, Prof. Horatio C. Wood, in his introduction to a "System of Therapeutics," considers "first, the different principles which underlie the modern methods of therapeutics, including a discussion of the way in which physicians have discovered the facts upon which these principles are based; second, dosage; that is, the question of the amount of the remedies to be given, including the *relative effects upon the human system of the same medicine in different doses,* and the influence of idiosyncrasies or personal peculiarities, as well as of age, of sex, of habits of life, and other similar agencies, upon the action of medicine in various diseases; third, rules for the combination of drugs which should govern the physician in combining medicines into prescriptions."

The relative effects of drugs in different doses is one of the most important practical studies the therapeutist can make. He ought also to bear in mind that drugs are equal to harm as well as good. It is to be regretted that no work, so far as we know, differentiates the effects of varying dosage. The more modern works come very near doing so, but do not quite reach the point. It is fair, we think, to hope or even presume that before long this will be accomplished. Hare points out in some instances where large doses should be employed as well as where smaller ones will be better. This is a great improvement over the older literature of the subject. He also says that the dose must be varied to fit the case in the same manner that the cut of a coat must be varied to fit each individual. No doubt we should all agree that a smaller dose is safer during the period of reconnaissance to ascertain susceptibility, than a larger one.

Again, Hare says before ordering a drug or method of treatment the physician should have a clear conception of what he is trying to accomplish. No remedy should be given unless there is a distinct indication for its use. The old-fashioned "shotgun prescription should be supplanted by the small-calibre rifle-

ball sent with directness at the condition to be relieved. Having decided upon the remedy indicated, the physician must next determine the dose required. This latter decision is almost as important as the first, for very often an error in dosage will cause failure of the remedy. A large part of the therapeutic skill of the physician consists in fitting the dose to the needs of his patient.

Those who deride medical therapeutics as useless have either never tried them or have used them incorrectly. The therapeutist is able to treat successfully many diseases of which the pathologist is ignorant, and is obliged to base some of his treatment on empiricism for lack of knowledge of how his drugs act if the pathologist cannot advise him in what the disease consists.

Reynolds, in his classical text-book on Practice, emphasizes the importance of combining the objective and the subjective phenomena of disease in making a diagnosis of disease, and we want to urge upon our readers the necessity of using the same combination in the still greater task of selecting a remedy that will fully meet the conditions of the individual as found in practice. The tendnecy of all prescribers of drugs is toward polypharmacy, the natural resort of the inexcusably ignorant and routine practitioner.

Hare is right in saying that he who does not believe in the proper use of remedies for the cure of disease lacks the very keystone of the arch upon which all medical investigation rests, for the ultimate aim and object of all medical thought and effort are the cure or alleviation of disease. Like every other thing requiring a thorough knowledge of its component parts, methods of treatment are often much abused by the careless and ignorant, but are a power for good in the hand of the properly educated physician.

INVESTIGATION OF FOOTBALL.

DR. EDWARD B. NICHOLS and Dr. Homer B. Smith, the attending surgeons of the Harvard football team during the past season, have submitted a report *(The Boston Medical and Surgical Journal*, January 4th, 1906), which will certainly startle many minds. We set forth, to begin with, succinct observations which these experienced and conscientious physicians have made: The number, severity and permanence of the injuries which are received in playing football are very much greater than is generally credited or believed. The greater number of injuries come in the "pile" and not in the open plays. The number of injuries is inherent in the game itself, and is not due especially to close competition, as is shown by the fact that the proportion of injuries received in games and in practice is about the same. A large percentage of the injuries are unavoidable; and this percentage is greater in football than in any other of the major sports; it is much too great for any mere sport. The game does not develop the best physical type of men, because too great prominence is given to weight without corresponding nervous energy. Constant medical supervision where large numbers of men are engaged is a necessity and not a luxury, although it is questionable if a game, requiring the constant attendance of two trained surgeons, is played under desirable conditions. Leaving out all other objections to the game, ethical and practical, the conditions under which the game is played should be so modified as to diminish to a very great degree the number of injuries.

There were 145 major injuries noted by the surgeons among the players, of whom only 70 took part in the season's games; nearly every one of the regular players received two injuries requiring prompt surgical attendance. Besides these there must have been very many minor mishaps which were not brought to the surgeon's attention. Every player, no matter how skilled he is, is sure in the long run to be injured. There were nineteen serious brain concussions noted in a season of seven or eight weeks; all resulted in serious loss of memory, and made possible cerebral hemorrhage, such as did actually occur in the case of the captain of the team, who must as a result "revise his whole plan of life and indefinitely remain under careful medical supervision."

This report, as we have noted, is the production of scientific men, who are not moved by hysteria or undue emotionalism. One of them was in his day a noted college athlete. They quite completely confound those who make comment concerning the present movement to reform the game; the sarcastic observations of the latter that the most strenuous of college games should now be backgammon or croquet, are now shown to be quite without point. The situation is obviously a serious one, in which trifling is quite out of place. Our universities have, in our opinion, been of late much belied; the criterion upon which they have been judged, has been more that of mere brawn than of brain and intellect. And we submit that the test of "seats of learning" should be the latter and not the former of these qualifications. We invite the reader to an examination of the recent columns of *Collier's Weekly*, in which it has been shown that uneducated hoodlums (the phrase will not be found exaggerated) have been meretriciously drafted into the student ranks of an institution, in order that a brutal victory over its rivals may be gained. It is pitiful indeed to see this mean and sordid spirit of our times permeate the life and character of a young men's college.

We submit that England does much better than

we in this regard. In its universities and schools the game is played for the pure love of it, and victory is not sought at any price, no matter how dishonest, as is too often the case with us. The English game is open; there are no mass plays, no "bunches," no "piles"; there is no slugging, no Hooliganism. Over there they play a straight, honest, gentleman's game, less than which no college man should descend to.

THE REAPPOINTMENT OF DR. DARLINGTON.

THE reappointment of Health Commissioner Darlington for a further term of four years must certainly gratify every physician who desires to see the physical welfare of the community vouchsafed. We extend to him our hearty felicitations. He has demonstrated during his commissionership of the two years just passed a singular ability and earnestness in grappling with the tremendously important matters which all within the province of the Health Department of New York City. The greatness of this work is hardly appreciated until mayhap some fault in detail, some slight lapse in vigilance may excite the citizen to hot and generally unreasonable indignation. And the business of the Health Department is, we say, tremendously important. For if one will but stop to consider, there is absolutely nothing in life, either communal or individual, so important as health; nor anything so bitterly to be deplored, when it is gone past remedy.

In a municipality as huge as is the metropolis, so labyrinthine are the relations which the Health Department bears to the whole machinery of government, so complicated are the duties that fall to it, so great are the difficulties attending the execution of wholesome measures that a very unusual stamina and circumspection are requisite. Such qualities as these Dr. Darlington has certainly displayed. He is comparatively a young man, as important public office goes; and the commissionership has been his first official position. He has, however, during the last two years acquired a firmness of grasp which assures from him the continuance of a very memorable service, and one worthy the just applause and the gratitude of the electorate.

Among the recent achievements of the Department are the following: A very careful examination of the physiques of school children has been instituted whereby there has been brought to light a truly amazing condition of functional and anatomical abberation from the normal in the very young. Trachoma and other ophthalmic contagions now undergo treatment in the Department hospital and clinic. Serums are now provided, not only for diphtheria, but also for other infections such as tetanus, wherein either cure or immunity may be secured by this means. A commission of eminent scientists has, under the auspices of the Department, rendered exhaustive and scientifically important reports with regard to the diseases pneumonia and meningitis. The tuberculous poor may receive treatment in the Department clinic; and more than this (so far as the communal health is concerned) education, so that the family and environment of the consumptives may be measurably safeguarded against the spread of this disease; the Department's hospital receives advanced cases, who thus do not infect their fellows; a large tract of land has been secured up-state where many of the city's poor who have incipient tuberculosis may be restored to health and to become again useful citizens; the Department has co-operated with many non-governmental bodies, notably with the Charity Organization Society and the National Association for the Study and Prevention of Tuberculosis, in the recent Tuberculosis Exhibition in New York City.

It is most gratifying to note that Mayor McClellan, in beginning his second term of office, has made such appointments for the various municipal departments as will insure to this city, which has been in the past so sadly a prey to conscienceless political activity, a very great measure of good government. We find particularly that the Police, Street Cleaning and Tenement House departments are to be chieftained by able, courageous and honorable men. It is with these men that the Health Commissioner must co-operate if his Department is to yield its righteous measure of fruition; nor can any one who has reviewed Dr. Darlington's earlier work assign to him a lesser place among these four Commissioners. We may even hope, and confidently, too, that the crying curse and the world-wide shame among American institutions, its misgoverned municipalities, will, during the next four years, find its refutation in the government of New York City, the most difficult of all American cities to govern well.

THE ROENTGEN RAY IN THE DIAGNOSIS OF DISEASES OF THE LUNGS.

IN a recent paper by Pfahler on this subject, published in the *Journal of the American Medical Association*, this authority makes the statement that the lesions of tuberculosis can be recognized earlier and more accurately than by any other method, while it is the most valuable and the most acurate method of recording the lesions at various stages of the disease. This is a broad statement and one not yet fully accepted by the profession at large, yet it is becoming patent that no chest examination is complete without an X-ray examination.

There are many difficulties, however, both in tech-

nique and interpretation. The latter task is generally far more difficult than the first. The negative and not a print should be used for purposes of study. In the first place fluroscopic examinations of the lungs have been largely discarded because of their inaccuracy and dangers. To photograph the lungs, they must be at rest; the patient must hold his breath, which usually can be done from three to fifteen seconds; yet Pfahler reports several good negatives in the case of children taken in one-tenth of a second. This is surely a great advance in X-ray therapeutics.

It is well to have a thorough physical examination made of the patient before the Roentgen examination, for it may modify the method used or make a second examination forcibly unnecessary. Of course old calcified tubercles furnish the most decided shadows and lesions of this sort can be diagnosed as small as one-eighth of an inch. Fibrous scars cast less dense shadows and hence such small lesions cannot be determined. Consolidations vary in the density of their shadows with the size of the lesion, but an area of one-half inch in diameter can be detected in a thin patient. Of course all points of consolidation at varying planes are thrown on the photographic plate on one plane; hence one might conclude that more of an area was involved than was actually the case. It requires an experienced observed to detect this variation, for if the whole lobe or lung is involved, the density will be much greater than in scattered areas.

Cavities are recognized by their increase in transparency surrounded by the shadow of consolidation. If the cavity is small or resting on a large area of consolidation or thickened flema, it is less easily recognized. A cavity of one-half inch in diameter ought ordinarily to be detected.

In pneumonia, in pulmonary gangrene and abscess the Roentgen ray is serviceable especially in lesions not centrally located as beneath the scapula. In pneumothorax, pleural effusion, emphysema and collapse of the lung the ray is of service. Even in such obscure cases as subphemic abscess, this condition has been noted by the X-ray.

It is pleasing to note that workers in this field are using more and more the term "Roentgen ray" instead of the somewhat uncertain one, "X-ray." It was a wonderful discovery, and it is proper that its discoverer should be honored and remembered in this way. Let all workers and writers in this field make it a practice to select this term and it will easily become attached permanently.

Flat Life in Paris, declares *Harper's Weekly,* must be very different from what it is in New York, if President Loubet is so eager to give up the Elysée for it.

THE AVERAGE LENGTH OF PRACTICE OF THE AMERICAN PHYSICIAN.

THERE were formerly three classes of lies, of which the extreme was "statistics"; nowadays we are getting more respect for such data or collecting it more carefully. The necrology department of the *Journal of the American Medical Association* is probable as complete as any such department covering such a vast area can be made. In it were recorded 2,045 deaths of physicians in the United States and Canada in 1905. There is an estimated medical population of 215,000, hence the rate of mortality is 16.36, not differing much from previous years; 14.74 in 1902; 13.73 in 1903, and 17.14 in 1904. It is astonishing that death, so unexpected in the individual, is so regular and constant in the mass.

The youngest doctor reported was 23; probably there were younger men who died, but being so new in their profession their deaths were not forwarded. The oldest was 104, a fairly ripe age for a nerve-racking profession. In practice the time varied from nothing to seventy-five years, probably the record of the 104-year-old doctor; it is well he did not hear the views of Osler or he might have lost thirty or forty years of usefulness. There were five others who practiced over seventy years. The average length of practice is thirty-one years and one month, quite a remarkable length considering the fact that so many physicians are exposed to death, disease, exposure, and exhaustion constantly.

The military records show that of this number 184 served their country for the North and 70 for the South in the Civil War, while 11 were Mexican War veterans. Two had served in Indian wars, 10 in foreign wars and 12 in the Spanish-American War. Many were prominent in civil life, as congressmen, mayors, postmasters, coroners, state senators, consuls, and even as judges.

The nerve racking character of medical practice is seen in the list of causes of death, for heart disease in various phases leads all other causes with 202 cases. Cerebral hemorrhage is second with 153 deaths; pneumonia, 141; tubeculosis, 102; nephritis, 100; senile debility, 80; accidents, 72; suicides, 46; typhoid fever, 41; malignant disease, 34; septicemia, 28; appendicitis, 27; and so on down the list.

It is interesting to note the methods of suicide, for it is to be naturally supposed that the physician if he chose his manner of death would get the best and easiest method possible. Twenty-six of these killed themselves with revolver or gun, seven by morphine, four by carbolic acid, four by bleeding and three by strangulation, showing that no especial difference exists when the thought of self-murder occurs. Probably the individual is in such a depressed mental state

that no attempt is made to die in the easiest manner possible.

The introduction of new men into the profession is still greater than the outgo to a considerable proportion. There is no sign of any dearth in the supply of medical men.

CASE HISTORIES.

AN idea is a precious thing, and the *Medical Standard* presents one in its observation concerning a noted diagnostician "whose working library almost entirely consists of reprints and clippings containing accounts of actual clinical cases and who pays very little attention to ordinary text-books." The foundation of diagnosis, declared this wise physician, is objective induction, to which end the actual clinical experience of the thousands of men who are in daily living contact with disease in the persons of their patients is the most valuable and the most trustworthy part of medical literature.

For ourselves, we feel some dereliction in this regard. Case histories are dry, as Dr. O. W. Holmes said of bones, when he began his annual course of lectures on anatomy; and we are under the journalistic necessity to set forth an author's views in as comprehensive a manner as possible. The general practitioner, however, is not under this obligation; and to him the idea evolved by our esteemed contemporary should appeal strongly. Richardson, in his address on *The Responsibilities of Surgery* (*Jour. A. M. A.*, Oct. 7, '05), has emphasized this idea with regard to his experience as a teacher. One is almost able to say, he declares, "this student will make a successful diagnostician, and his advice will always be good; that student will never amount to much as a diagnostician." In one of his examinations at the Harvard Medical School he asked his advanced students to give the diagnosis, the prognosis and the treatment in eight carefully described cases, taken from his note-books. In some of these cases there had been a great difference of opinion among physicians of the largest experience; yet some of the students, interpreting the histories properly, and drawing the correct conclusions, gave invariably the right answers. Many of these students did not show the learning of others who generally drew wrong conclusions. "The student whose deductions were in every case correct will without question make more successful practitioners than the students who, though exhibiting much more learning, picked out the unimportant features in the histories of the cases, and on these unimportant features based correct deductions, which were, as to the real lesion, always wrong." Richardson emphasizes as requirements of the successful diagnostician "the power of grasping the essential features of a case, and of basing on such evidence conclusions almost invariably correct."

It is said, in part explanation of the successful career of a very great physician, that "he buried himself for ten years in the morgue." This observation needs explanation, of course. The meaning is that this scientific man spent most of these years in studying cases. A hospital patient, on entrance, had his family and life history most carefully recorded; then followed the history of his disease before entrance; and then an exhaustive case record while in hospital. When death occurred an autopsy was always most eagerly sought, and, when granted, carefully conducted. The diagnosis made in hospital was then substantiated; and if it was not, the reasons why were discovered and added to the store of experience, which day by day became richer for this wise student of disease.

We had the good fortune at one time to do some work in the pathological laboratory of a great hospital. Before an autopsy was made each assistant studied the case history as it was brought down from the ward, and each man gave his opinion and his diagnosis before the body was opened. Sometimes the conclusions were correct, sometimes they were startlingly otherwise.

THE PANAMA CANAL.

WE have here a theme upon which the imagination should delight to dwell. A glance at the map of the Western Hemisphere suffices to indicate how advantageous to the happiness and well-being not only of the Americas, but also of the whole world, would be a waterway adequately large through the Panamanian Isthmus. A vessel which would now reach the coast of our Western States with its cargo untouched must perforce sail or steam thousands of unnecessary miles, and this has been the case since the beginning of our American civilization. Our great Clark, than whom we have had no more splendid nor glorious captain, and our good battle-ship *Oregon*, would not, if there had been an Isthmian Canal, have had to make their epic voyage around the Horn; nor would our sailors and stokers, in their heroic eagerness to reach the Cuban seas before the expected fight with the Spanish ships, have had to forego even drinking-water in order that steam might not be lacking. And not only the Western World, but all civilization for centuries past, has needed this canal; for European commerce, seeking to reach the Pacific markets, both our own and in the Orient, would thus find a direct passage for its ships, without having to make a wide and occasionless detour. Balboa and Charles the Fifth grasped this situation, although they had not before them the maps which we now can see, and knew not of the two vast continents which are separated by this narrow strip of land; and discerning men (the greatest among whom was De Lesseps) have since recognized the over-

whelming importance of this enterprise, of making a ship canal sufficiently wide and deep for all vessels of whatever tonnage to pass each other.

During the last fifty years or so this beneficent project has failed of fulfilment, in large measure through the punative and selfish opposition of railway interests and the power these latter have had with unscrupulous politicians.

It would seem now that, after many years of agitation, of useless palaver, of back and fill diplomacy, of stupid and ineffective planning, a canal is fairly likely of construction; and no doubt it will eventually be constructed despite some very pitiful conditions which evidently now obtains in "The Canal Zone." The medical reader will no doubt recall the strictures of Dr. Reed. Mr. Poultney Bigelow's recent article in *The Independent* has been much discussed. We are glad that the President has requested a Congressional investigation, and that an investigation is in progress. Undoubtedly much that is reprehensible exists to-day in relation to the building of the canal. We have no disposition to take part in the discussion of these matters, save to note that throughout history enterprises of like nature (from which politics cannot possibly be divorced) have invariably been attended by grave scandals. Nor need we confine ourselves to American history in this regard. The history of the Crimean war, for instance, is saturated with simply hellish examples of govermental incompetence and corruption. The main thing, and the only thing that will be remembered by a grateful posterity, is the accomplishment of this colossal enterprise. Perhaps the greatest clog upon progress here is the lack of sufficient appropriations. Thus far only a parsimonious sum of ten millions has been voted, and this by a billion-dollar Congress—a Congress which expends every year a thousand millions upon—what? Let the reflecting citizen answer to his shame! This mighty project should not be frustrated by petty considerations.

Three Surgeon-Generals in Uncle Sam's service have been differentiated by Dr. O'Reilly, who holds one of these positions. The title of surgeon-general of the army was bestowed on the head of the Medical Department of the army in 1818. Dr. O'Reilly now holds this title, and considers he has the right to retain it, as his corps has had it so much longer than the others. In 1871, the chief of the Bureau of Surgery and Medicine of the navy was made surgeon-general of the navy. In 1902, the supervising surgeon-general of the Marine Hospital Service was made the surgeon-general of this service. We agree with Dr. (or is it General?) O'Reilly that this sameness of title has led to much confusion which might become really serious in time of war. (*Nota bene:* We should have thought that the proper plural with which this item is headed should be surgeons-general; but prefer not to be at variance with so high an authority as our esteemed lay namesake, the *New York Times*, to whom we are indebted for these facts.)

BIBLIOGRAPHICAL

A Text-Book of the Diseases of the Ear, Nose and Pharynx.—By D. B. St. John Roosa, M.D., LL.D., Professor of Diseases of the Eye and Ear in the New York Post Graduate Medical School and Hospital; Consulting Surgeon to the Brooklyn Eye and Ear Hospital; formerly President of the New York Academy of Medcine, etc., and Beaman Douglass, M.D., Professor of Diseases of the Nose and Throat in the New York Post Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. New York: The MacMillan Company, 1905. Octavo; pp. 621. Price, $3.00.

This text-book may be placed at the very head of the list by the practitioner and the student who wishes to study and treat diseases of the ear. We are glad to see that proper stress has been laid upon the simpler affections, which may usher in the graver ones, and we are told how to treat acute affections in the early stages, so as to avoid an operation when possible. The subjects are practically woven together, to represent the clinical picture as it is found in every-day work. Its authors are men of high standing in their specialties and their work, based upon a large experience, must command the attention of the profession. We cannot commend the book too highly.

The Dissociation of a Personality.—A biographical study in abnormal psychology. By Morton Prince, M.D., Professor of Diseases of the Nervous System, Tufts College Medical School; Physician for Diseases of the Nervous System, Boston City Hospital. Octavo; pp. 569. New York: Longmans, Green & Co., 1906.

This volume is a study of disintegrated personality as exemplified by a remarkable case. In this study the author has traced the development of the different personalities which originated through the disintegration of the normal self, and shows their psychological relations to one another and to the normal self. A detailed account of the daily life of the personalities is given after the manner of a biography in order to show their behavior to the environment and the way in which a disintegrated personality can adapt itself to the circumstances of life, and how it fails to do so. These phenomena have been briefly discussed in this volume as an introduction to a deeper study. Abnormal psychology is fast becoming an important field of research in the scientific world, and this treatise will prove an important contribution to the literature. Those who are interested in the subject should not fail to read this interesting and instructive account of a rare case.

Man and His Poisons.—A practical exposition of the causes, symptoms and treatment of self-poisoning. By Albert Abrams, A.M., M.D., Consulting Physician Denver National Hospital for Consumptives, the Mount Zion and the French Hospitals, San Francisco; formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College, San Francisco. Illustrated. 12mo; pp. 268. Price, $1.50. New York: E. B. Treat & Co., 1906.

The subject of intestinal self-poisoning is now sufficiently known to furnish data for a most interesting volume, and for its successful treatment. It is now generally admitted that the human body is a receptacle and laboratory of poisons of a most dangerous character, and which may be manifested in a great variety of dis-

eases, the symptoms of which are mainly objective. The author presents in clear terms and in concise form the fundamental principles of the subject. Special attention is directed to the action of the Sinusoidal Current, and to the principles of psychotherapy. Our readers cannot fail to be interested in the book, and it will be found useful.

Blakiston's Quiz Compends.—A compend of medical chemistry, inorganic and organic, including Urinary Analysis. By Henry Leffmann, A.M., M.D., Professor of Chemistry in the Woman's Medical College of Pennsylvania, etc. Fifth edition. Revised. Philadelphia: P. Blakiston's Son & Co., 1905. 200 pp.; 12mo.

There never was any doubt in our mind but that there is a place for such books as this; they are the A B Cs of the student, and a great help. We cannot agree with the statement that "Chemistry is chemistry without reference to the applications," and the author is right in adapting his science to the special use of the medical student. It is excellently done, and just what is needed.

Saunders' Question Compends.—Essentials of Materia Medica, Therapeutics, and Prescription Writing. By Henry Morris, M.D., College of Physicians, Philadelphia. Seventh Edition. Thoroughly Revised. By W. A. Bastedo, Ph.G., M.D., Instructor in Materia Medica and Pharmacology at the Columbia University (College of Physicians and Surgeons), New York City. 12mo; pp. 300. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $1.00, net.

The student cannot find a better or more practical work on its subject than this little " essentials " from the press of W. B. Saunders & Co. Dr. Bastedo, in revising the book for this seventh edition, has brought it in accord with the new (1905) Pharmacopeia, introducing all the new remedies and carefully indicating their therapeutic doses and uses. For a work of three hundred pages it contains a mine of information so presented as to be easily grasped. There is no doubt as to its value.

Gall-stones and Their Surgical Treatment.—By B. G. A. Moynihan, M.S. (London), F.R.C.S., Senior Assistant Surgeon to Leeds General Infirmary, Leeds, England. Second edition, revised and enlarged. Octavo of 458 pages, beautifully illustrated. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $5.00, net; half morocco, $6.00, net.

The first edition of this work was completely exhausted in eight months. The author, by his masterly presentation of operative technic and clear, logical discussion of indications and contraindications, has won an enviable place in contemporary abdominal surgery. In this edition, increased in size by some seventy pages, many additional case records have been incorporated and a number of new illustrations added. We note also the addition of a very valuable chapter—Congenital Abnormalities of the Gall-Bladder and Bile-Ducts. It is evident that the whole text has undergone a careful revision and all recent work along the line of gall-stone surgery included. Mr. Moynihan's book still holds first place in its field. The illustrations are very beautiful, especially the nine colored plates.

Differential Diagnosis and Treatment of Disease.—A Text-Book for Practitioners and Advanced Students. By August Caillé, M.D., Fellow of the New York Academy of Medicine; Member and ex-President of the American Pediatric Society; Professor of Diseases of Children, New York Post-Graduate Medical School and Hospital; Visiting Physician to the New York Post-Graduate and German Hospitals; Consulting Physician to Isabella Home and Hospital, etc. With 228 illustrations in the text. Octavo; pp. 867. Cloth, $6.00, net. New York: D. Appleton & Co., 1906.

This book is written for the specific purpose of assisting the general practitioner in the management of his cases, and aiding the advanced student in acquiring a clinical foundation in order to be useful at the bedside. The general practitioner, representing the unity and connection of the various branches of medical practice, must grasp the practical details of his art, and a reference book, to be of practical value to the family physician, should convey clinical experience without the exhaustive and often purely theoretical details to be found and sought for in monographs. Dr. Caillé's book is built up on a purely clinical basis, and differs from other books of its kind because it attempts to re-establish the divorced relations of internal medicine and surgery, and because it presents specialistic methods from the viewpoint of the general clinician. Well-tried and valuable formulas are distributed through the book, and some of the chapters have a special formulary. The work is made attractive by practical illustrations, and each chapter is prefaced by a synopsis of its contents and by brief remarks on the clinical pathology of its subject. To all who are interested in rational modern medicine this book will be a companion in leisure hours and a ready counselor.

A System of Medicine.—By many writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College, and Humphrey Davy Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victorian Hospital for Children; sometime Fellow of St. John's College, Cambridge. New edition revised throughout, with additions. Volume I. New York: The MacMillan Company, 1905. Octavo; pp. 1209. Price, $5.00.

The second edition of this classical work is intended to be brought out, one volume a year, each new volume corresponding to one of the first edition. In this way the original edition will be gradually superseded by the new. The new edition is more than a mere revision. In most instances the articles have been so changed as to be fairly regarded as new matter. The present volume is introduced by a masterly contribution on the history of medicine by Professor Clifford Allbutt and Dr. Payne. The articles on Medical Statistics, Medical Geography, Old Age, Dietetics, Exercise in the Treatment of Disease, and on X-Rays, Prolegomena, General Pathology of New Growths, Fever, Some of the Acute Infections, etc., are all written by men eminent in the profession, and specialists in their respective subjects. Volume II., which is expected to appear this year, besides other subjects, will cover the field of Tropical Diseases. The work cannot be commended too highly.

Nervous and Mental Diseases.—By Archibald Church, M.D., Professor of Nervous and Mental Diseases and Medical Jurisprudence in Northwestern University Medical School, Chicago; and Frederick Peterson, M.D., President of the State Commission in Lunacy, New York; Clinical Professor of Neurology and Psychiatry, Columbia University. Fifth edition, revised and enlarged. Octavo volume of 937

pages, with 341 illustrations. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $5.00, net; half morocco, $6.00, net.

It is not at all surprising to us that a fifth edition of Church and Peterson's work should be necessary. Indeed, such a success was to be expected from what is undoubtedly the most complete and authoritative volume on nervous and mental diseases to-day. In preparing this edition Dr. Church has carefully revised his entire section, placing it in accord with the most recent psychiatric advances. In Dr. Peterson's section—Mental Diseases—the Kræpelin classification of insanity has been added to the chapter on classifications for purposes of reference, and new chapters on Manic-Depressive Insanity and on Dementia Præcox included. While the changes throughout have been many, they have been so made as but slightly to increase the size of the work. A number of the illustrations have been replaced by newer and better ones. We can confidently say that this work will maintain the reputation already won.

A Text-Book on Modern Materia Medica and Therapeutics.—By A. A. Stevens, A.M., M.D., lecturer on Physical Diagnosis, University of Pennsylvania; Professor of Pathology, Woman's Medical College of Philadelphia. Fourth edition, revised. Octavo of 670 pages. Philadelphia and London: W. B. Saunders & Co., 1905. Cloth, $3.50 net.

The fourth edition of this excellent work on practical therapeutics appears at a most opportune time, close upon the issuance of the Eighth Decennial Revision of the Pharmacopeia to which it has been adapted. The author, by his extensive teaching experience, has acquired a clear, concise diction that adds greatly to his work's pre-eminence. New articles have been added on Scopolamin, Ethyl Chlorid, Theocin, Veronal, and Radium, besides much new matter to the section on Radiotherapy. The numerous changes in name or strength of various drugs and preparations, as called for by the new Pharmacopeia, have also been made. The book is commended as one of the best of its class.

Dose-Book and Manual of Prescription-Writing: with a List of the Official Drugs and Preparations, and the more important Newer Remedies. By E. Q. Thornton, M.D., Assistant Professor of Materia Medica, Jefferson Medical College, Philadelphia. Third edition, revised and enlarged. 12mo; pp. 392; illustrated. Philadelphia and London: W. B. Saunders & Co., 1905. Bound in flexible leather, $2.00, net.

A glance at the contents of this book fully explains its attainment of a third edition. In addition to the consideration of the official and the more important non-official preparations intended for internal administration, weights and measures, solubilities, and incompatibilities, attenton is given to the grammatic construction of prescrptions, illustrated by examples. In revising the text for this edition the author has made it conform with the new (1905) Pharmacopeia, the radical change in strength or name of many chemicals, drugs, and preparations already official, and the admission of many newer remedies necessitating the rewriting of a number of sections. We notice in the Appendix an addition of much value—a table showing the change in strength of important preparations, and also a list of average doses for adults in accordance with the new Pharmacopeia. Dr. Thornton's Dose-book is, as it always has been, accurate and up to date.

CORRESPONDENCE

EMUNCTORY MEDICINE.

To the Editor of THE MEDICAL TIMES:

"Throw physic to the dogs." Shakespeare uttered a commendable recommendation in these words for some persons sometimes. Too much physic has been taken into the human stomach and not the proper attention paid to the emunctories or elimination of noxious matter; purify the system of self-poisoning or auto-intoxication. The eighteenth century passed into history as a poly-pharmaceutical one. Montaigne, stone afflicted, wrote: "I was the other day in company where some of my fraternity (like afflicted) told us of a new set of pills made up of a hundred and odd ingredients." The practice of that time and earlier provoked much of the evil said of the profession. Not the least unfavorable comments are these words:

"Trust not the physician:
His antidotes are poison, and he slays
More than you rob."

Physic, like other human things, contains good and evil, and bears testimony to the truth contained in the lines of Philip James Bailey, author of Festus:

"With man all good hath evil;
With God evil is itself good."

The hydropaths showed good records in their day in the treatment of diseases. They excremented, washed out, their patients. This sect did their work too violently and sedulously. The reforms effected by them are still existing though this age has neglected to give proper credit for their labor.

The Hahnemannians showed favorable results in their treatment of disease as contrasted with other methods then prevailing. They did not impair the human body by unfavorable exhibition of drugs and impairment of excrementitious labors on the part of the body. They also studiously avoided injuring the system by deleterious feeding. The dietary prescribed by some Hahnemannians would displease epicures and reduce the value of life in the minds of some. Their practices tended to prevent overloading the system, thus reducing the functions of the excrementory organs and congestion of detrite material. These two sects worked reforms. Medicine has been less injurious because of their existence.

Every manifestation of life, every function is attended by a change of matter that causes it to vary in relation to proper live tissue. Every thought causes a retrograde change in matter, a catabolism. Every sensation has its impairment of compounds and requires the escape of detrite substance or there is development of vitiated states in the body. Grief manifests itself either in profound nervous prostration or the escape of excrementitious matter. When sudden pangs of grief are retained fear for the life of the person is entertained, but when the lachrymal glands are excreting fear is reduced. If the shocks of grief are sufficient to paralyze the excrementories death may result. Ignatia is prescribed for this paralysis and thus loosen the retainers of evil by excretion.

The poisonous materials that affect the brain in diseases need different remedies according to the nature of

ailment. In uremic coma the brain is surcharged with noxious matter that should be eliminated. The urine is retained and perspiration checked. For this form of defective excrementation or to prevent it give pilocarpine or infusion of digitalis and hot baths, air or water.

The mucous membrane of the respiratory tract is a prominent example of the failure of emunction. True catarrh of this membrane is a rare disease, but so-called "nasal catarrh" is a fad with many persons. The word catarrh means to flow. The ordinary disease referred to as catarrh is characterized by a reduction of the flow or secretion of the membrane. Instead of the membrane being evenly moistened by a thin fluid there is a heavy secretion which does not flow but accumulates on the surface and produces annoyance. The six turbinated bodies of the nose in health secrete one pint of fluid daily which moistens the inspired air and the membranes. This fluid is a secretion, not an excretion, whose specific gravity and limpidity is nearly that of water. It is bland as that of the eyes or mouth. In the impaired condition of the mucous membrane of the turbinated bodies, improperly designated as catarrh, the quantity of substance given off is much reduced. The thickened substance is more nearly an excretion, because it fails to perform as useful a part as the healthy fluid, and efforts are required to get rid of it. The condition producing this thick excretion should be designated rhinitis or turbinated hypertrophy, as there is a condition or result the opposite of catarrh. The word catarrh as related to the ordinary ailments of the respiration membranes should be avoided. The true pathology of disease of the nose and breathing surface should be recognized and expressed.

It is common practice to apply astringents to the membrane for this rhinitis when relaxants would be more philosophical. Errhines have a very beneficial effect and are commendable in cases. Pledgets of cotton saturated with thuya and cotton-seed oil is an admirable application. Trichloracetic acid will reduce hypertrophy of the turbinates. The escharotic is not attended with as much swelling when chromic acid is used. Eucaine and adrenalin chloride will reduce the fullness of the soft turbinates and permit the insertion of glass tubes to keep permanently patent the nostrils. These tubes may be worn for days thus performing plastic operations without drawing blood. Springs made of gold plated wire, spiral shaped, have also been used for continued dilation and absorption of tissues. The electro cautery is useful as an escharotic. Metallo-electric dilations fit in nicely sometimes. Where stenosis of nostrils is due to hard tissues or deflection of septum use forceps, drill, trephine, punch, saw or chisel and mallet.

A cause of nose and throat disease is too small respiratory openings and these openings are further reduced by excessive brain action, congestion and paralysis produced by inhaling dry air and carbon dioxide, which surround persons following sedentary and indoor pursuits. The suction and compression of the turbinates during respiration constantly tend to increase of disease. Increased size of nostrils reduces the action of these causes. The turbinates resemble the foolish armadilla, which burrows into the carcass of an animal, fattens thereon and becomes so lethargic that it cannot perform requisite functions for continuing life and dies, atrophic.

The lungs excrete more waste substance than other organs of the body. Impairment of lung function causes more deaths than any other cause. The lungs absorb 11,000 grains of oxygen and throw off 4 2-3 pounds of waste matter daily. The excretion consists of water, carbon dioxide, ammonium, and impurities of a poisonous nature. They killed 123 persons in 146 in one night while confined in Black Hole, Calcutta. These impurities have not all been isolated and named. Experiments have demonstrated their highly deleterious nature. These impurities are probably gaseous ptomaines, the products of phagocytosis, which is constantly going on in the blood. This phagocytosis, which means the destruction of bacteria by leucocytes, or the white corpuscles of the blood, is necessary that health may be maintained. The product of phagocytosis which the homeopaths had among their nosodes and called tuberculin, is believed to be the same as the Koch lymph. Its power to kill is certain; its power to cure is doubted. The elimination of these poisons from the lungs is of great importance. Pure atmosphere of an invigorating temperature and proper density and vitality will supply oxygen to purify and lung gymnastics aid in carrying off these products. A thorough cleansing and invigoration of the lungs and system may be secured by careful lung exercise in a medium composed of pure oxygen and nitrogen monoxide; especially is this recommended to one in poor health.

It is believed to be possible for the lungs to perform the whole of emunction or excretion; thus permitting the removal of other excretory organs or their suspension of action. A patient was under treatment who had but one fecal action in two or three weeks for some years. This patient was relieved of most excrement through the lungs. Respiratory gymnastics are more physiologically and effectively made by proper attention to the nostrils and correction of impaired conditions.

The kidneys elminate three pounds of urine in health daily. The components of urine are: water, urea, uric acid (an oxydized urea) hippuric acid, creatinine, extractives, sulphuric acid, phosphoric acid, sodium chloride, etc. These substances should be thoroughly eliminated from the system and prevented from accumulating unnaturally and concreting in the bladder. Secure complete discharge of the urine by urinating in the prone position. The best substance for cleaning and keeping clean the urinary organs is the free use of pure hot water. Water may be made more effective in some cases by the addition of potassium and sodium salts. Where there is trouble from accumulation in the bladder stretch the urethra with sounds.

The rectum discharges about five ounces of matter daily in health. This discharge is favorably influenced by thoroughly dilating the sphincter ani, keep the mucous surfaces free from obstructions, removing surplus tissue, regularity in response to the needs of nature, flushing the rectum, ingestion of fruits, coarse sand, laxatives of mineral salts, with plenty of water, vegetable laxatives occasionally, gymnastics, massage of bowels with hands and rolling of soft-covered cannon ball over the abdomen. Make the matter of time of emptying the bowels more important than the time of taking food. Be prompt and regular. Do not become the slave to vegetable or mineral laxatives. Assist the system by strengthening the natural internal restorative force.

The skin is an important emunctory organ. From it two pounds of matter are daily excreted in health.

It is reported that a jockey being too heavy to ride reduced his weight twelve pounds by active exercise in heavy clothing in a single run. Two men lost eight pounds playing hand ball in one hour. This would indicate a water-soaked system and that some people are overburdened. The skin excretes water, carbon dioxide, urea, organic substances, lactic acid, sodium lactate, sodium and potassium chloride, iron, phosphorus, etc. Pilocarpine is an excellent diaphoretic and removes excess of water in tissues as obesity, dropsy and hindered breathing caused by water about the heart. Thermal baths render the skin more excretory. Cold baths are tonic and act favorably on the thermogenic nervous centres, increasing the heat production of the system, thus enabling it to withstand exposures. Cold baths, like exercise, should be taken intelligently and never used when one finds the system does not show increased vigor. The temperature should be gradually reduced from bath to bath and not too low temperatures entered by the unaccustomed. One must acquire ability to endure cold baths as one does vigorous exercise.

The idea in this paper is to appreciate the importance of removing from the system injurious materials instead of constantly introducing them into the system. The system saturated with detrite material is weakened in all functions. The late Prof. S. D. Gross, when asked if he would bleed patients ailing with pneumonia, replied that "he would in certain stages and the results of its early practice were better in the treatment of this disease than the present practice." The present practice is not satisfactory. May not phlebotomy be more philosophical and physiological than some present methods, in that it removes obnoxious material?

J. P. GEPPERT, M.D.

Cincinnati, O., December, 1905.

Oedema, declares Mann (*British Med. Jour.*, May 20, '05), when due to cardiac lesions, is essentially hydrodynamic in its origin. To some extent it may result from the back pressure of the blood, the chief factor being an increased permeability of the vessel walls, due to lack of oxygen and of nutrition. Renal œdema is more difficult of explanation; it may be due, among other causes, to changes in vascular epithelium, produced by waste products in the blood, and the defective elimination of H_2O. Attention has recently been called to the close relation between the retention of sodium chloride and the occurrence of œdema. When the heart alone is at fault, physiological rest is a therapeutic essential. Digitalis is among drugs the most efficacious. The purin derivatives, caffein, theobromin and theocin are valuable in renal incompetence; among these the first is the most active cardiac stimulant and the last the most powerful renal stimulant. Diuretin is appropriate. With any of these digitalis may be combined. Diaphonesis may have to be induced, if the kidneys cannot be made to act. Cathartics are of little value. Diet is of importance. Salines should be restricted. A moderate amount of solid food, low in proteids, may be allowed. When the volume of urine is ample the intake of liquids needs no restriction; when the urine is scanty, states *American Medicine*, the liquids should be regulated by the daily weight of the patient, an increase of weight calling for their restriction.

RETROSPECTIVE THERAPEUTICS

..**The Spirochæta Pallida** was exhaustively considered, with regard to the likelihood of its being the specific cause of syphilis, by Dr. Simon Flexner, in the Wesley M. Carpenter lecture recently delivered before the New York Academy of Medicine. Dr. Flexner chose for his subject the *Etiology of Syphilis.* No certain claim can yet be made; yet it is hoped that a definite result may have been achieved. He described inoculations of monkeys with syphilitic virus; and considered that these experiments proved not only the susceptibility of certain monkeys to the local lesions of syphilis but also the possibility of successive transmissions of the virus from animal to animal. The use of animals has solved certain questions relating to the manner of entrance of the virus into the organism and the comparative virulence of different products of the infected animal; some explanation might thus also be forthcoming concerning the vital question of reinfection in syphilis. Lesions were produced by cutaneous inoculations with primary syphilides and primary lymphatic glands. Subcutaneous injections of chancre and condylomata produced no specific manifestation. Insertion directly into the peritoneal cavity of infected glands was without effect. Such was also the case in the two latter instances with defibrinated blood and blood serum from cases of recent syphilis in man. And blood serum from human syphilis was also without protective action against subsequent inoculation with active virus. The internal organs of recently infected monkeys and apes possessed neither infective nor protective properties of high degree. These are Neisser's results, which bear upon the relative infectiousness of the blood and internal organs of syphilitics, and which throw light concerning the avenue through which the virus enters the body and its ability to enter directly into the interior and to cause the secondary lesions without first having undergone incubation at some local superficial site. The poison is easily destroyed by low degrees of heat (at 51° F. particles of chancre and condylomata were rendered inert in one hour). Flexner related the early experiments which revealed a spirillum—*the spirochæta pallida,* in the interior of a chancre and a mucous patch. This organism is in extent from four to ten microns, and has a width varying from immeasurable thinness to one-half a micron. (And here we may note, in passing, one reason at least, why the infective agency in many diseases has not yet been discovered—that no microscope powerful enough, no technique delicate enough has yet been perfected, which would be essential for such discovery. For instance, the Koch bacillus is three or four microns in length; and is not easy of detection with a 1-12 inch oil immersion lense). The spirochete has from three to twelve sharp and regular curves; it is a motile organism, in which flagella have not been discovered. With most stains recommended it is tinged so lightly that one finds it with much difficulty; hence the qualifying adjective. The fluids obtained from the interior are most favorable for examination, because here the organism is less likely to be mixed with coarser kinds of spirilla or with other bacteria. Flexner believes that the morphological characters of the spirochete (upon which we must at present rely for its identification) are sufficient to distinguish it in a specimen from a specific lesion, but possibly similar morphologi-

cal forms occur in nature among the saprophytic organisms. The evidence is now conclusive that the spirochete is contained in primary lesions constantly, or at least, in the majority of cases. The ulcerated papules of the mucous membranes of the mouth and throat seem to contain this organism in good numbers and to be especially suitable for demonstration. Flexner believes the evidence thus far educed to be still inadequate; yet the presence of the spirochete should be sought systematically to confirm or prove the diagnosis; thus may valuable time be saved, and many stigmata of the disease may possible be avoided. The spirochete occurs in gland juice; but long search may be required to find it. Flexner has always tried to get aspirated fluid containing masses of gland cells, since the blood alone is not likely to yield the organism. It must be found in the regional lymphatic glands, if it is to have any position as the probable cause of syphilis. A question as yet unsettled whether the spirochete invades the deeper parts of the body and whether it inhabits the circulating fluid; in neither of two cases studied by Flexner was it found in the centrifugalized blood specimens. There is, however, abundant evidence of its distribution by the general circulation, so that it would appear to be taken out by the blood-vessels of the skin and mucous membranes, and possibly the internal organs. It seems to Flexner fair to assume that the inflammatory and productive lesions were associated with, and perhaps caused by, this localization, though it is as yet *sub judice* whether the direct causes of the vocal reaction are vascular emboli or perivascular infections. A question of much importance is suggested by the great length of time during which the germs of syphilis must, under some conditions, endure in a living state in the body. Here is constituted a fact of high importance in the history of the recurrences and the congenital transmission of the disease. Is there reason to believe that congenital syphilitic manifestations are associated with the occurrence of *spirochæta pallida;* are the number and distribution of this organism such as to explain the lesions and the infectiousness of this disease; does the spirochete exist equally in those cases of congenital syphilis, which were the offspring of a parent suffering with florid syphilis, and of another in whom the disease had not manifested itself for many years? The evidence at hand would indicate that the organism may survive in the body for many years and may be transmissible by a parent, herself free from the usual signs of the disease. There are sufficient records of examinations of infants (the subjects of congenital syphilis) to show that the organism regularly occurred in the disease. It is established that congenitally syphilitic children can infect healthy persons; and in conformity with this fact Bakes and Panea were able to demonstrate the spirochete in the pharyngeal and conjunctival secretion of such children. The establishment of the spirochete as the cause of syphilis has therefore been done only in part, so far as the study of congenital syphilis is concerned. Perhaps data may in the future be secured bearing upon the question whether the placental circulation is or is not previous to syphilitic virus, and thus light be shed upon those cases in which the child has become infected from a post-conceptional infection in the mother, and possibly only on that remarkable condition of supposed immunity. In conclusion, Dr. Flexner emphasized that his opinions at present are tentative and should be thus understood.

Rhus Toxicodendron Poisoning.—McKee, E. S., M.D., Cincinnati, has found *Experimenta Docet* to be true, and feels that having had rhus tox. poisoning twice he knows more about it than he did before, and should be allowed to speak, somewhat, *ex Cathedra.* At the big trees at Santa Cruz, California, he contracted the first case in 1897. It came out beautifully in San Francisco, caused much suffering through the hot Sacramento valley, found some relief from bathing in the waters of the soda springs of Mt. Shasta. A weak phenol solution obtained at Portland afforded temporary relief, but a plunge and a swim in the hot lake at Mammoth Hot Springs, Yellowstone Park, gave complete and permanent alleviation. This case is noteworthy, principaly from the novelty and variety of its treatment.

The second case was contracted by running into a bush returning from a night call in Sedamsville, a suburb of Cincinnati. The next morning the inflammation occurred and the second morning both eyes were out of sight and the eruption was all over the body, the little twin blisters burning and itching like fire. He had no rest, except under drugs, for a week, and not much for three weeks. The relentless burning and itching put him as near the crazy line as he cared to get. Everywhere he touched himself with his poison-ladened hands the disease was spread or aggravated. Weak carbolic acid lotions gave but temporary relief, as did also carbolic salve. Solution of borax gave but brief comfort. Lotio Plumbi et Opii gave more comfort than anything used so far. Powdering the whole body with rice powder gave more ease and lasted for two or three hours. He had great expectations from Burrows' Solution, Saturated Alumini et Plumbi acetat, which was only partially realized. A tablespoonful of this was put in a pint of water and used as a lotion. In his frantic efforts to rid his hands of the poison, thereby stopping the spread and aggravation of the trouble, he found that a thick lather of soap gave a degree of comfort, and the more ordinary (stronger) the soap the more extraordinary the solace. Alcohol in the ordinary strength added fuel to the flames, but alcohol dilution of the U. S. P. gave much ease. He found the following most useful in relieving the burning and itching and stopping the spread of the disease: ℞, alcohol, 53.00; aquæ distillatæ, 47.00; plumbi acetatis, q.s.; ut fiat solut. sat., S. Apply. This would give relief for a whole night. Pfaff, of Harvard, discovered the toxicodendrol, an alcohol soluble fat resembling croton oil. Alkalies to a degree saponify the fat and give relief, but alcohol is the eradicator *par excellence.* Exposed again he would as soon as possible wash his hands in the alcohol dilute of the U. S. P. to dissolve and remove the poison. If he reached the alcohol within an hour or two he thinks the disease would be aborted. Otherwise he would then apply to any part where the vesicles had appeared the saturate solution of the lead acetate in the dilute alcohol previously mentioned.

He found the nervous symptoms a very serious complication in his last case, for which he took 2.00 gramme doses of bromide of sodium, four to six times a day, with two drops of Fowler's solution with each dose, to prevent acne bromata. He claimed and obtained accident insurance.

Tetanus in children is curable, states Swift (*Australasian Med. Gaz.*, June 20, '05), only by means of the injection of antitetanic serum, at the earliest possible moment, with vigorous antiseptic treatment of the wound. Under no other treatment is recovery possible; in any event, it is very rare indeed. Anders and Morgan, in a preliminary report (*Jour. A. M. A.*, July 29, '05), find convincing proof that tetanus invariably results from the introduction of the germ, and that the so-called rheumatic or idiopathic tetanus has no existence. It is endemic in all large communities. In some localities where it was formerly endemic, as in Long Island, it has become rare. Small epidemics occur in limited localities where they can be traced to a definite source, as a hospital. It is most prevalent, as a rule, in the warm months; males are more subject to it than females; it is less frequent in advanced age; the robust are more susceptible than the weak; the nervous more than the lymphatic. It is in all probability transmissible, and may give rise to epidemics. The specific cause, Nicolaier's bacillus, enters usually through open wounds; it is rarely introduced by the digestive tract. Among the 1,200 cases studied by these authors the characteristic symptoms, especially trismus, were generally present. The diagnostic importance of the tonic contractions as opposed to the intermittent type of contractions in such conditions simulating tetanus as strychnine poisoning, is dwelt upon. The mortality decreases gradually after the tenth day, and more rapidly after the fifteenth. Immediate radical local treatment is important; the wound must be opened freely in all directions under general anæsthesia. Carbolic acid locally may be efficacious; good results may be obtained from the local use of ice or of freezing mixtures, or treatment in a cold room. As palliatives, chloral and the bromides are indicated. Calabar bean has been much used. Morphine should be used with caution, on account of its inhibitory action on the respiratory centers. The testimony of all observers is uniformly in favor of antitoxin treatment; the serum should also be injected in cases of suspected tetanus. "In a well-developed case it has no appreciable beneficial effect, neither reducing the mortality nor hastening recovery."

The passing of bromism in epilepsy is the subject of comment in the *N. Y. Medical Journal* (Aug. 19, '05). The bromides are of suppressive value in this disease; but suppression is not cure. They may hold attacks in temporary abeyance while other forms of treatment that aim to remove the cause are applied. The dosage is generally much too large. As a routine treatment, no more than from 12 to 20 grains should be given three times a day. Emergency doses, to check serial attacks or to relieve the status epilepticus, may be much larger. Among the factors which may account for the disappearance of bromism in epilepsy are: (a) The recognition of the necessity for the treatment of the individual as a whole organism in contradistinction to the treatment of a single symptom. (b) The use of such depressants as possess the virtues of the bromides, but not their faults; for example, the pure bromide in oil of sesamum, given in the form of an emulsion. (c) The use of Toulouse's method of a diet poor in salt to augment the value of relatively small doses of a bromide. Ten grains of bromide is thus as effective ordinarily as twenty grains when no check is put upon the amount of chloride of sodium that is consumed in the food. Asylum experts often come upon cases of bromide dementia—a condition which usually clears up after withdrawal of the drug. Such cases are now of great rarity, although the admissions are much more frequent than formerly. "The more completely one can get away from the idea that epilepsy is simply a convulsion and nothing more, a disease with one fixed symptom, to be cured by one drug, the more gratifying will be the rate of recoveries."

Cerebro-spinal Meningitis.—The practitioner should at this time be on his guard against this dreadful disease, and should be well equipped to fight it. Francis Huber, who has had much experience, declares we should not lose sight of the large proportion of malignant cases, the grave character of the anatomical changes and the great irregularity in the clinical course. One cannot predict the subsequent progress from initial symptoms. Treatment is entirely symptomatic. The case should be isolated in a well-ventilated room and general nutrition kept up. An ice bag often gives comfort. The bodily functions should be regulated. Forced feeding through the mouth or nose may be indicated. Chloral per rectum or morphine per os or hypodermatically may be given to relieve pain and restlessness or convulsions. Phenacetin, with or without codein, may be given to relieve headache. Severe vomiting in the latter stages has been relieved by lumbar puncture, small hypodermics or morphine, ice in the epigastrium and careful dieting. Sodium benzoate, or caffein subcutaneously, relieve pulmonary œdema. The iodides may cause absorption of plastic exudates. Local bleeding by leeches is ineffectual. If there is chronic hydrocephalus, repeated tappings at intervals of a few days are indicated. From 10 to 15 c.c. of fluid may be removed in order to influence intracranial pressure; not more than 20-30 c.c. should be taken away, unless evidences of pressure are very marked. Hypodermoclysis, if given early, may overcome the initial shock and prostration after the removal of the fluid; and may possibly dilute the toxins and supply fluid to the tissues. (Lumbar puncture is done as follows: The patient lies on the side with thighs and body flexed; strictest antisepsis; an aspirating needle is introduced on one side of the median line upward and inward into the third lumbar interspace, until its point enters the spinal canal and the fluid flows out drop by drop. It will usually be turbid, purulent or bloody; and will contain the diplococcus intracellular meningitides.

Fungus poisoning is discussed by Plowright (*Brit. Med. Jour.*, Sept. 9, 1905), who states that most mushrooms and other fungi are not poisonous. The vast majority of deaths are caused by one species, the *Amanita phalloides*, which owes its lethal power to a toxalbumin—phallin. The most commonly observed symptoms are vomiting, occurring about ten to twelve hours after eating the fungus, diarrhœa, pain in the abdomen, cramps of the stomach and diaphragm, intense thirst, cold sweats, collapse, sometimes headache, delirium, more or less complete suppression of urine, slight but distinct jaundice in severe cases, subnormal temperature and sometimes cramps in the limbs. Post-mortem shows absence of cadaveric rigidity, marked hypostatic

discoloration, inflammation of the alimentary mucosa, localized ecchymoses of the liver, digestive tract generally, pleura and lungs, enlarged solitary glands, fatty degeneration of the liver, fluidity of the blood and meningeal hyperæmia. Emetics (which are however generally not necessary as there is much unassisted vomiting), morphine to relieve suffering, and potassium manganate (to decompose any phallin left in the stomach) are the therapeutic indications. The *Amanita phalloides* is recognized by the cup-like base of the stem, the permanently white under-surface and gills, the shining, pale-greenish, or yellowish-white top and the fact that it never grows far away from trees, especially oaks.

Hyoscine in Paralysis Agitans.—In the treatment of this most intractable disease, which generally is progressively unfavorable in its course, any new plan is entitled to consideration. Higier (*Neuralog. Centralb.*, May 16, 1905) has used hyoscine with fair results not only in this affection, but also in intractable chorea and in various neuroses. In paralysis agitans 1/200—1/100 grain of hyoscine were given in fifty cases during periods covering a year; one patient took it in alternation with duboisine for seven years. A pill given before the midday meal induced a feeling of languor and sleepiness after the meal with dryness of the throat, followed by sleep lasting about an hour, and succeeded by a quiescent stage of from three to four hours, during which there was no tremor. There was generally a persistent lessening of the tremor. Sometimes there was intolerance with quickening of the pulse and forty respirations to the minute, dimness of vision and hyaline casts in the urine. In cases which tolerated it, the prolonged use of the drug produced no ill-effects. In three cases of intractable chorea (one of which was a case of chorea gravidorum), arsenic, the bromides, salicylates, chloral and morphine were ineffective. Here 1/200 grain doses of hyoscine daily reduced the violent movements within a week. Daily doses of 1/100 grain were effective in senile pruritus; in some such cases hyoscine was combined with antipyrin. The drug was decidedly effective in these doses in spasmodic asthma, subcutaneously in conjunction with caffein; between the paroxysms Higier gives this combination in minute doses for weeks. He has used hyoscine in morphinism with good results; but it was unsatisfactory in alcoholism and recurrent mania. In acute mania a hyperdermic of it gives some nine hours of good sleep, with consequent general mental improvement; here, however, heroic doses (1/30 grain) should be given, and only when other drugs have failed.

In the treatment after the removal of adenoids Krebs (*Centralb. für Kinderheilk*, June, 1905) emphasizes two indications: the undisturbed healing of the wound should be promoted; recurrences (which are so frequent) should be prevented. The wound had best be left to itself, and insufflations, sprays, brushes or collunaria should be avoided—the latter being especially liable to promote middle ear suppuration. During the first few days only a two per cent. solution of peroxide of hydrogen should be used as a gargle, which, of course, never comes in contact with the wound, but it sterilizes the region about it and dispels much of the bad odor. The diet should be fluid and cold for about five days, when ordinary diet (except sharp and peppery foods and crumbs) may be taken. Dust particles should not be inhaled. Children should be kept from school for a week. Coughing immediately after the operation may indicate a small piece of tissue not entirely removed, and still adherent to the pharyngeal vault by means of mucous membrane. The operator should never be content until all bleeding is stopped. If after removal of all remnants (best done with a pair of cutting forceps) and all bleeding has stopped, the cough still continues, no doubt the cause is simply reflex, set up by the irritation of the wound. This will soon subside. Post-operative hemorrhage is rare, but a complication always serious. The quality of the instruments and the experience of the operator have much to do with this. There should be absolute rest, elevation of the head, loosening of all clothes around the neck, sucking of pieces of ice and (in bleeding from the upper air passages) deep inspirations through the nose followed by light expirations through the mouth. (Upon this Krebs lays great stress.) The deep and forced inspirations diminish the pressure in the superior vena cava and its tributaries in the neck; consequently the blood will be held a little longer at its point of egress from the vessel, and will therefore be able to clot easier. Krebs warns against the use of Bellocq's sound in obstinate cases, declaring that pressure is thus applied to the posterior ends of the turbinates, and not at all to the bleeding surface. He uses a small piece of wool or gauze soaked in vioform or (if nothing else is at hand) perchloride of iron, by means of long pharyngeal forceps. (We would suggest also styptic cotton.) After continued pressure in an up-backward direction the forceps should be cautiously opened and withdrawn, leaving the tampon if possible. There is occasionally a fever, which Krebs cannot explain for all cases. Two or three days in bed will bring this temperature back to normal. Rarely it is due to follicular tonsillitis or to erysipelas, or to otitis by extension from the pharynx. A painful stiffness of the neck may supervive for several days in cases where it has been found necessary to scrape the region of the upper cervical vertebræ; no doubt the periosteum of the atlas and axis have here been scraped. No treatment is required. Thorough removal of the growths are necessary to obtain the second object of treatment—the prevention of recurrences. There should be examination of the vaso-pharyngeal cavity in about a week after the operation. Any newly-formed tissue should then be removed with the finger well sterilized—a procedure very easy and effective at this time, when the tissue is unusually soft and spongy. Internally iodine and iron are administered (Krebs recommends sol. ferro-manganiodo-peptonata, ℥i t.i.d.). After operation instruction against mouth breathing should be instituted.

A City of Consumptives is described by the *Medical Review of Reviews.* The National Fraternal Sanitarium, acting in the interests of 8,000,000 members of fraternal organizations in the United States, have accepted the one-million-dollar tender of the Santa Fé Railroad, and ten thousand acres of land given by the city of Las Vegas in New Mexico. A new community—Fraternal City—will be built six miles west of Las Vegas. It is to be practically a sanitarium for consumptives, maintained by per capita contributions of members of the great fraternal and religious orders. The gift of the Santa Fé Railroad includes the $500,000 Montezuma Hotel building in the Rio Gallinas Cañon, with several structures in the vicinity, several hot springs and 1,000 acres of land. By the fall of 1906,

the plant is expected to be in good running order. Five thousand patients will be received, this number to be increased indefinitely, as rapidly as funds are available. Fifteen representatives of fraternal and religious orders will form a board of managers, in whom the government of the sanitarium will be vested. The basis will be common ownership, with profit to none. Most of the patients will come from the organizations interested; others will, however, be admitted upon the payment of a small fee. Those wishing occupation may engage in stock farming or other work incidental to the operation of the enterprise.

Glycocholate of Sodium in Liver Diseases.—Richardson (*N. Y. Med. Jour.*, Sept. 30, 1905) declares that the bile salts are the only real cholagogues. Their presence in the blood stimulates the liver. They dilate the blood vessels in small doses and constrict them in large doses; they slow the heart-beat by direct action on the heart muscle and cardiac ganglia, and when present in the blood in too large quantity cause pathological effects and may lead to coma, stupor and death. The absence of glycocholates and thoracholate from the blood leads to the formation of gallstones. If gallstones are placed in healthy gall-bladders they will be absorbed in a few months by the solvent action of healthy bile. In jaundice there is a stasis of the bile from whole or partial occlusion of the ducts. As long as the occlusion lasts the sodium glycocholates are contra-indicated, but as soon as the duct is patulous the fluid in the bile should be increased by copious administration of alkaline waters, and sodium salicylate and sodium glycocholate should be given to dissolve the pigment and hasten its elimination by the intestine. The latter drug is useful in the early symptoms of hepatic cirrhosis when there is discomfort and weight in the hypochondrium, the skin harsh and dry and "liver spots" appear. Not only does this salt increase the bile flow, but it helps the absorption of the fats and also aids peristalsis. It is most important of consideration that many cases of chronic constipation (a condition so persistent) can be gradually overcome by means of this treatment. After operations for gallstones the glycocholate should be administered to prevent the stones reforming. It aids in dissolving stones that have already formed. The dose is five grains tid.; although fifteen-grain doses will not occasion nausea. The action is cumulative; so that the full dose should not be kept up for any length of time. In hepatic colic the administration may be continued for some months. Half an ounce should be taken in a month as a prophylactic measure. It is indicated in all forms of hepatic insufficiency in conjunction with other treatment. It is a valuable adjuvant in the treatment of arteriosclerosis.

The Rockefeller Institute for Medical Research, to which Mr. Rockefeller has given three millions of dollars, is ready for occupancy. The site, at the foot of East Sixty-sixth street, includes twenty-six city lots. The buildings are extremely handsome, of gray brick, with limestone trimmings. The main structure is 60 by 150 feet, and is five stories in height; its first story contains administration offices, library and assembly hall; on the second floor are physiological, chemical and pharmacological laboratories; and all the machinery, such as presses, centrifugal machines and distilling apparatus; above, the building is to be devoted to experimental pathology and bacteriology. The fifth story provides space for photomicography; and here are accommodations for artists and other assistants who may have to pass the night in following experiments. The entire roof will be covered by an animal and bird house. There is also an animal house on the grounds; here creatures from horses to guinea pigs will be kept for experiment in the study of disease or in the preparation of antidotes and sera.

This Institute is the first of its kind in the United States. It was founded five years ago by Mr. Rockefeller on the death, from dysentery, of his infant granddaughter. The board of directors is headed by Dr. W. H. Welch, of Johns Hopkins; Dr. T. M. Prudden, Dr. L. E. Holt, Dr. C. A. Herter, Dr. Simon Flexner, Dr. H. M. Biggs and Dr. Theobald Smith are Dr. Welch's associates. To obtain immediate results this board has established nearly twenty scholarships in various laboratories in this country and has also sent several medical men to Europe to pursue investigations there. After the first year the home of the Institute was definitely established in New York City, which was agreed to be the American centre of medical teaching.

Clinical Medicine.—Cabot and Locke (*Bost. Med. & Surg. Jour.*, Oct. 26, 1905) present some excellent ideas of how medicine should be taught. There should be more practical instruction. There should be greater diversity in the methods of teaching—corresponding both to the different aspects of the study and to the different stages of the student's development. The proper keeping of records should be taught—a very important consideration. It is really deplorable to think of the amount of valuable scientific material which goes to waste because of the hospital interne's and the practicing physician's lack of training in this regard. There is need of broader training in the use of literature. Of this Osler has always been a most consistent and insistent advocate. Not only should medical literature be studied, but *belles lettres* should receive more attention than is usually bestowed upon this graceful broadener of the intellect.

More section work is advocated, and a wider use of pictures in teaching. The stereopticon should here prove a valuable aid. There should be an increase in the amount of independent work, and examination of the ability to practice medicine rather than to write or talk it. With regard to teaching there should be adequate supervisions, correlation and criticism.

A scheme for the Sanitary Control of the Municipal Milk Supply is advised by Goler (*Amer. Med.*, Oct. 21, 1905). There should be established a bureau of milk inspection, with the chief sanitary officer at its head, empowered with the granting of licenses for the selling of milk. Boards of medical men and scientists should compile rules for the production and distribution of milk of higher nutritive valve and lower bacterial content than ordinarily good city milk. There should be insured, either directly or through the inspectors appointed by the commission itself: The character of stables and the feed of cattle, the health of milkers and the care of utensils; a negative tuberculin test; a bacterial standard (not greater than 10,000 bacteria per c.c.); a nutritive value of 12.5 per cent. of solids, of which 4 per cent. must be fats. Only by means of such organization as is here advocated may the producer and the vendor be under sanitary control.

"When such laws are enacted for any municipality as will make it an offense punishable by fine or imprisonment to bring milk into the city that has not had the seal of sanitary approval set on it, and everything with which it comes in contact, our children and ourselves will no more be exposed to the dangers that arise from dirty, disease-bearing milk."

The Doctor's Waiting Room.—We are pained to have come upon some unmistakably flippant observations in so sober a journal as the *New York Evening Post*. "Why," it is asked, in the hope that some great psychologist may elucidate a problem which has puzzled the masses, "why must the waiting-room of a doctor or a dentist always be a plain, ill-furnished room? Why must it always contain magazines from three to six months old? Why must the one gaslight, which illuminates it at nightfall, always burn dim and low, so that reading is made possible only at the risk of one's eyesight?" The *Post* is loath to explain this practice (which it is convinced is universal), either by insinuating that these professional men never read themselves, and therefore, fail to perceive the connection between literature and illumination, or that they desire to prepare their patients for the terrors in store by making them just as uncomfortable as possible before the ordeal began. To a stupid layman, the opposite policy would seem to be advisable. The latest magazines, the newest and jolliest books, in pleasant rooms, with charming furniture and fittings, ought to be an extremely good investment, purely from the financial point of view. "But, we forget" (and here we discern in the *Post* the flippancy which gives us grief); "doctors and dentists are above that sort of thing. It is the sufferings of humanity which alone appeal to them."

We beg now to enlighten the *Post* concerning this important matter; and that without recourse to psychology. And first we would refer to a description in Dickens of the waiting-room of a member of another learned profession—the law. You went down a few steps, generally stumbling the first time, walked along a gloomy passage, and were shown into a dingy, "plain, ill-furnished," badly-lighted room, in which there were not even magazines to read. (For this was in that happy, golden age, when the modern magazine had not yet been inflicted upon an inoffending public.) In this ante-room (like unto the one so veraciously noted by the *Post*) you waited until the great man would see you; and while you waited you "meditated upon a misspent career." This was good for you; it is good for any man, even more so to-day, we imagine, than it was in Dickens' time. The doctor, we would remind our flippant cotemporary, has from time immemorial combined with his healing art the kindly function of a moral preceptor; in olden time he was both physician and sacerdos. And there is no reason why to-day he should relinquish entirely the latter office. That is why the physician's waiting-room should resemble a cloister, where the patient may think hard and determine that the indiscretion, which brought him into the doctor's clut— we mean within the doctor's sphere of influence— should never recur.

As to magazines—we are inclined to apply to them, with much better reason, the observation of Dr. Oliver Wendell Holmes concerning drugs, that it were perhaps best for humankind (though unfortunate for the fishes) if they were one and all thrown into the sea. We find not only the reading but also the advertising pages of the modern magazine replete with pernicious articles, advice and counsel how to get healthy and keep so without recourse to the Faculty. This is not good for such people. (Our observation is purely altruistic, as our quotation from the *Post* justifies us in stating.) Let both patient and public eschew magazines and confine themselves to good literature—Shakespeare, the addresses of Dr. Osler and the *Evening Post*. However, if magazines must be read, why shouldn't they be old? It is good to "love everything that's old": old friends, old times, old manners, old books, old wines; "and why not old magazines?" We too readily forget the past; the perusal of ancient history is very emollient in these strenuous days. And "jolly" literature should have no place in a doctor's waiting-room. Such is conducive to health which the patient should acquire, not in the waiting-room, but in the office, where a fee can be properly adjusted. And conversely, any patient who will read by the light of a single gas jet burning "dim and low," will sooner or later require the services of an ophthalmologist. Here are evidences of the business instinct for which the medical profession is so justly celebrated.

With regard to dentists the pre-consultation environment certified by our cotemporary (which is committed "to the diffusion of correct information") is especially appropriate. Here the patient with the aching molar may study how best to convince the dentist that he is not a foreign prince in disguise, and failing in this, how best to mortgage his estates so as to meet the accounting which will be forthcoming.

Musical heart murmurs are described by M. Landelfi (*La Ref. Med.*, Sept. 30, '05), who makes analyses acording to site, time or heart cycle, etc. These murmurs are usually heard over the valvular areas, are prolonged and musical, like small ronchi that are heard in the small bronchioles of the lungs. Capozzi observed them in five cases, two of mitral insufficiency. In Landeefi's case, which came to autopsy, there was tuberculosis of the lungs, anæmia, and galoprhythm of the heart, with a musical murmur localized at the apex and not radiating. The murmur was not constant. The patient died without uremic symptoms. No valvular perforations were discovered; but there was chronic pericorditis, with concentric hypertrophy of the left ventricle. The left auriculoventricular orifice was normal and the whole valvular mechanism was sufficient. Probably, however, there was relative insufficiency; here Landelfi discerns a prognostic value, indicating that the heart was unable to carry on its work any longer. He believes that these murmurs are generally due to valvular insufficiency, but are not of diagnostic value.

Public medical lectures are being given by the New York Academy of Medicine with the purpose of interpreting to the laity the medical point of view as regards the many subjects in which medicine comes in contact with the public. It is intended to present such subjects as patent and proprietary medicines, pure drugs, pure food, tuberculosis, education and training of nurses, vivisection and immunity. The initial lecture was given by Health Commissioner Darlington on the work of the commissions appointed to study pneumonia and meningitis.

MISCELLANY

The Medical Union, so long desired, of the Medical Society of the State of New York, and of the State Medical Association, is now established by a court order. For three years a conference committee from both societies have worked toward this end.

Before introtroducing a filiform, olive oil should be injected into the urethra (Brinton). The penis should be drawn tense and the instrument passed with a rotary motion. If one will not pass, others must be inserted until half a dozen are introduced and the orifice found.

Ninety crematories are in operation in Europe and America, states a recent report of the French Society for the Encouragement of Cremation, and thus far 125,000 bodies have been incinerated in these institutions. This method of disposing of the dead is becoming very popular in South America.

Kernig's Sign.—When the thigh is flexed at right angles to the abdomen, the leg can be extended upon the thigh nearly in a straight line (Osler). In cases of meningitis this sign may be elicited; it is here due to strong contracture of the flexors, which prevent the full extension of the leg on the thigh.

The form and substance of a skeleton was recently seen to be projected upon the shade of a lighted room in a London house. This gruesome spectacle excited fear and indignation, until it was learned that a lacture on first aid to the injured was in progress, the skeleton having been used as a model.

Inflammations of the pleura, states *The International Journal of Surgery,* are so often of tuberculous origin that it is well to treat all these cases as if they were actually tuberculosis. Hence, after operations upon the pleural cavity an antituberculous plan of treatment should be pursued and the patient kept under observation for some time.

Physicians' Business Methods.—The *Northwestern Lancet* declares that if the physician would conduct his business on a legitimate foundation, and adhered to it by pushing methods, he would be able to reject commissions from druggists, could pay his bills like a gentleman, care better for his family and himself, and gain the respect of the community. Then his word in municipal and legislative worlds would be followed and appreciated.

An oxygen hospital was recently opened in London. On this occasion the wards were inspected by the visitors who saw consumptive patients in glass-enclosed cubicles, into which purified and oxygenated air is driven by an electric fan. A gratifying feature of the inspection, states *The Hospital Gazette,* was the presence of many patients who had been cured at the hospital and came to give a practical proof of the merits of its treatment of ulcers, wounds, lupus and consumption.

Ammonium bromide, declares Charteris (*Therap. Gaz.,* Nov. 15, '05), is more toxic than the sodium salt. With large doses the predominating action is due to the ammonium, whether the drug be given by the mouth or beneath the skin or by intravenous injection. Large doses may cause convulsions and death from respiratory failure. This drug seems to cause a marked rise of pressure with slowing of the rate and a more powerful beat. With repeated nontoxic doses a bromide action may be produced.

The Yerkes hospital foundation of six million of dollars was established by the late Charles Tyson Yerkes. A great hospital will be built in the Bronx Borough out of this benefaction. This part of the metropolis, situated as it is above the Harlem River, is become a city in itself—and one indeed of no mean proportions. There have heretofore been in this region no hospital accommodations proportionate to its growth and development; the need will, however, now be magnificently supplied by this bequest.

For the Menopause the plan of treatment should aim to sustain the organism by means of the alleviation of nervous irritability and by supplying sufficient stimulus and nourishment to keep the patient as nearly as possible at the normal standard of health, states Upshur (*N. Y. Med. Jour.,* Sept. 23, '05). Drugs (especially narcotics and alcohol) should be avoided where simpler and less active agents will accomplish the same ends. Hygienic regulations of all the functions and habits (especially sleep) should be attended to.

The secret of longevity, according to Prof. Goldmin Smith, is to live absteminously and in moderation—otherwise living pretty much as one likes. In his youth in England, he lived a very active life, following the hounds and mountain-climbing in the Switzerland having been his favorite recreations. Mark Twain has recently on the occasion of his seventieth birthday given some valuable advice to the same end: Not to smoke more than one cigar at a time; not to sit up after everyone else has gone to bed, so that there is no one left to chat with; and the like. As the revered and genially wise Mark astutely observed, one man's rules for attaining longevity might not be applicable in the case of others, and should not be too slavishly followed.

Physicians' Fees should be regulated upon the basis that the physician should have an estimate of the value of his services, operative or otherwise, fixed in his mind, declares Dr. John B. Roberts. The amount should be based upon his experience and skill—not so low as to coax away unjustly the patients of one's younger and less experienced colleagues. The fee should be lessened when the financial position of the patient would make its payment a serious burden. A well-to-do patient should pay the full fee, which should be generous in order to recompense the physician for his expensive education and hazardous life. But this fee should not be increased because the patient may be a very wealthy person, unless an unusual time is given to the service or an additional responsibility is placed on the physician by reason of the man's position.

The American Tuberculosis Exhibition in the city of New York was held at the Museum of Natural History, during the fortnight ending December 10, 1905. It was organized under the auspices of the National Association for the Study and Prevention of Tuberculosis, under the Presidency of Dr. Biggs, and the Committee of the Charity Organization Society of New York City, which is devoted to this work. The exhibition was planned as an educational measure; and in this regard must certainly have borne much fruit. Models, photographs, charts, diagrams and the like from all parts of this country, from Canada and from Europe were presented; and by this means, the essential facts, both scientific and sociological, concerning tuberculosis, were set forth. A number of lectures were given by Commissioner Darlington and others.

CERTAIN FEE TABLE ITEMS THAT INJURE THE GENERAL PRACTITIONER.

BY D. W. CATHELL, M.D., BALTIMORE, MD.

SIXTY or seventy years ago, when the sciences on which modern medicine is based, chemistry, physiology, pathology, bacteriology, physiological chemistry, etc., had practically no existence, and medicine was practiced on a much more uncertain and a much less satisfactory basis than now, and the medical profession was composed almost entirely of General Practitioners, all doing the same kind of work, and all facing very tangled and unsatisfactory financial problems; in their endeavors to better this bad condition, Fee Tables were devised and adopted by the practitioners of different sections, and these relics of those days are still in existence, and looking at them to-day we find the custom of estimating the amount due the General Practitioner from this or that patient is still reckoned by the number of times the physician visits a patient, or the number of times he consults the physician at his office, with but little or no regard for the nature of the case attended, or the degree of skill required.

But within these sixty or seventy years everything medical has undergone a change, and although such a plan may have been the wisest for our profession then, it is certainly not so now, because we of to-day live in an era of increased medical, and surgical, and hygienic knowledge, and consequently of much greater average professional attainment among medical men generally, and this marvelous growth of medical and surgical wisdom and skill has caused to spring up in all our large cities and towns a great number of well-qualified medical men who devote themselves entirely to various *Special Branches of Study and Practice,* and in consequence of their advent, our profession now consists of two great divisions: The Specialists: surgeons, gynæcologists, laryngologists, oculists, neurologists, alienists, orthopedists, proctologists, etc., in one division; and in the other, not confined to any one location, but scattered here, there and everywhere throughout the land, another and more numerous body known as General Practitioners.

In former days, these professional fee tables were supposed to govern every member of our guild, but now, owing to the very satisfactory work being done by our specialists, and their consequent excellent reputation as a body, the size of their charges for services is no longer controlled by these *Rip Van Winkle fee tables,* for which they have but little or no respect; but in lieu thereof, each man among them establishes for himself some more or less definite financial policy of his own, and each puts his own value on his services, and each usually takes care to charge each patient a sum large enough to materially aid in giving him and his dependents a comfortable support, with some addition for their needs when he is no longer able to work; and each rightly leaves his medical neighbors of every kind to shape their own financial policy, so that to-day this *old* fee-table method of computing fees by the visit governs none of our numbers except the general practitioners, and as far as the best interests of these are concerned, they govern them in the wrong direction.

Of course, in our noble and humane profession everybody, whether specialist or general practitioner, willingly and justly does, and I hope always will do, his share of *"no-charge"* work among the worthy poor, and each also has cases in which he willingly gives those who deserve it, *"a poor man's bill,"* and also for one reason or another, often gets but little or nothing, sometimes not even *"Thanks,"* for very valuable services, occasionally for saving life itself; and every specialist and every general practitioner alike also encounters transcient, indefinite, chronic or minor cases in which he charges only a meagre *pay-by-the-visit* fee, whether by the house-visit or for services at his office.

But when it comes to important and well-marked cases, in those able to pay full prices there exists a very wide and very deep chasm between the custom of the two professional bodies, for the specialist then *justly* ignores all details and charges *a bulk sum* for his services, while his brother, the general practitioner, in calculating the amount of his fees for cases often equally or more important, many times involving life itself, unjustly limits himself to counting the number of visits made with but little or no regard to anything else.

Look at any of these fee tables with this in mind and you will see that almost every item of the work done by the surgeon, or other specialist, speaks of a *specific* and *just* sum, and that, on the contrary, every item of personal interest to the general practitioner ignores *the true base for charging,* almost as though some hostile manipulator had purposely established the custom as a handicap, compelling him always and everywhere to found his charges, not on his skilful efforts, but on ignoble and incidental grounds; and to-day, in practice, while the fees of all others are measured by *their skill and services,* the G. P.'s skill and services, no matter how valuable and successful, are totally ignored, and his claims are measured by the unjust and belittling standard of *"How often he pulls his patients' door-bells,* or *how often they pull his,"* and consequently it is seldom, very seldom indeed, that he receives a full and just fee; all because he is handicapped by this ancient fee-table custom, which meanly measures his services by *bell knobs, mile posts,* etc., instead of by the worth of *important services rendered* by a skilful medical man.

All who have studied the subject know that ignoring or abolishing these fee-table wrongs, would neither bring the medical millenium, nor be a panacea for all the general practitioner's hardships, nor cover every distasteful and unjust feature of his practice, but it would give him *fee-table authority* to charge for pneumonia, typhoid fever, diphtheria and everything else, *by the case,* whenever it is proper and possible to do so, and would, in many cases, enable him to lift his claims from a mean and belittling standard to a far nobler one for himself, and a much better one for his pocketbook.

When the surgeon of to-day, or a gynæcologist, or an oculist, or a proctologist, or a specialist of any kind, renders services to a patient, his better business system enables him to *"lump"* his fee into a round sum of even figures: *five, ten, fifteen, twenty, twenty-five,* fifty, seventy-five, or a hundred dollars, and so on, up, and as everybody knows, instead of its injuring him, his *round* charge actually enhances his prestige in the estimation of all who hear of it, and he is apt to receive his round and satisfactory fee promptly, with but little or no haggling and with but little or no rebate.

But when Dr. Small, a general practitioner, after a long wait, finally dares to render Mr. John Doe his huge bill for the *ragged* amount of *twenty-nine* dollars for services extending over many months, the astonished Mr. Doe, with *our ball and chain fee-table way of counting* in his head, wonders how in the name of

Julius Cæsar he owes the doctor so much, and Doctor Small is apt to be asked how often, and for whom, Mr. Doe's door-bell has been pulled by him since he was last paid; and when Mr. Doe's items are furnished they will probably read about as follows: Son George and Ida, Scarlatina, 9 visits; Henry, Tonsilitis, 1 visit; Milton, Tapeworm, 3 visits; Grandfather, Cyctitis, 5 visits. Viola, Headache, 1 visit; baby Ruth, Bronchopneumonia, 6 visits; Obediah, passing renal Calculus, 4 visits; total, 29 visits, and even then poor Doctor Small, seeing that there still exists some dissatisfaction, as a matter of policy or from pinching need of money, may actually receipt the bill for twenty or twenty-five dollars. But, it is not this belittling financial injustice that goes most to Doctor Small's soul, but it is the discovery that all his skill and all his kindness to the Doe family are so soon forgotten, and that the old 1840 fee-table way of paying the general practitioner so long and accurately remembered.

Must our brotherhood in America continue to follow this old plan forever? No, no, in the name of Justice no! Our whole population is, everywhere, living under very different financial conditions from those of that old *by-gone* period, and to-day it is the duty of every medical man to his profession, to himself, and to his pocket-book, to base his charges on professional ability and on the character of the demands made on it by this or that patient, as often as it is possible to do so, instead of on a *chalk-mark count* of the number of visits; and, in my judgment, every item on fee tables not pertaining to specified items of *professional services rendered*, should be formally expunged; because now they are harmful to the financial interest of the very ones our medical forefathers designed them to protect; and whether our official authorities do this in meeting assembled, or not, every medical man in America who has not already done so should begin and studiously ignore them whenever and wherever it is possible to do so, and in lieu thereof make *skill and services* the foundation of all his charges; taking care that the amount named in each and every case be sufficiently large and round to *silently* cover visits, detentions, distances, and all other incidentals; because, by so doing, he will surely enhance his own reputation for skill, and at the same time, get better returns for his work; and also be aiding to instil into the public mind a more lofty and a more just standard by which to compute the worth of the services of the general practitioner, for then, and not until then, will this worthy division of our profession have the benefit of the better system it now so badly needs.

Radium in Œsophageal Cancer.—Einhorn introduces the radium vial inclosed in a hard rubber capsule which is screwed to the end of a flexible rubber tube inclosing a stylet to guide it, the latter being removed when the stricture is reached. The capsule remains *in situ* from half an hour to an hour. The instrument is easily cleansed and disinfected and can be employed also in gastric cancer. No mechanical force is employed—mechanical dilatation not being a part of the treatment. Einhorn believes that the methodical application of radium furnishes a means by which the course and seat of the disease may be favorably influenced—and at least retarded if the growth cannot be removed. It deserves, in his opinion, an extensive trial in this condition, which has thus far been intractable.

PROFESSIONAL RELATIONS BETWEEN PHYSICIAN AND DRUGGIST.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

THERE is near at hand a revival of therapeutic faith in pharmaceutical remedies for the relief of disease. The relations between physician and druggist preserve a tenure of much valued importance. A practical comprehension of the province of each has been materially matured, within about the last twenty years, while many facile medical minds have been thrashing over the empty straw of empirical doctoring with antitoxin serums in lieu of breathing-air hygiene and reasonable reliance on the indispensable aid of restorative materia medica. Medical practice, to very impressible degree, clings to habits of experimental vogue which now and again insists on changing maps like the artificers for the world's modistes change their season's fashion plates. The geography makers of pathologic physics—which to-day is swarming with the contagious fetich worship of bacterial idolatry—will, in the next big shift, clear out the bogs of microbe hallucination; will discern that the time-enduring carnival of bacilli, present in diseased conditions, is but the natural result of degenerate decay to which all mortal flesh is ever and ever prone; will, by logical survey of cause and effect, define the rational boundaries of prevention and of cure by the purer breathing-air environment of individuals and work-day limits of humanity; and the topography of health will yet gleam with scientific therapeutic defences against the aggressions of disordered conditions that naturally cripple and harass the availability of mankind in their share of the work of this world.

Medical practice has reversed many plausible and obdurate fads. The latest, though hard studied and hard fought for and hopefully espoused as a victorious revolt from the practical utilities of regular pharmacy, is nevertheless destined, after its temporizing vogue, is destined to creep away to the background of past experiment and memorialized repute. No step in medical history will ever outreach the sphere of intelligent, conscientious pharmacy. We have been striving with the enlisted hosts of pathological revolution; but an end comes to every campaign of chivalrous mistake. The disillusionized bacteria sachems will have spun their theoretic ropes of sand prophetically proposed for life-lines, by which civilized mankind was expected to be triumphantly rescued from the slough of suffering, and by which obtrusive reptiles of dreaded disease were to be snared and exterminated with the magical trick of antitoxinized horse serums! Then what? There will be earnest revival and restoration of the legitimate boundaries of professional reason and conservative practice through enhanced values of daily hygiene and rational therapeutics. Every conscript fad in medicine, servile in instinct, subtle and obsequious in exactions, is destined to one day land at its "Mason and Dixon line" of liberation from responsibility through the rescue-mission of more enlightened judgment. The gods of unwarped minds may move slowly against a colossus of error, but they "DO MOVE!" Can we summon an indisputable witness? Let us remind ourselves of the humane release from acute physical pain by the hypodermatic needle as compared with the once universally employed life-

sapping venesection lancet of sixty or seventy years ago. Let us note the vitalizing antiseptic analgesic as compared with the beguiling and stupefying opium dope of the time of our older preceptors, that drew down the shadows of many hastened deaths in toxic dreams of total oblivion. Let us even list the comforting relief of hygroscopic chemical paste of modern method, devised by advanced pharmacy, as compared with the soured poultice and the punishing Spanish fly-blister abstracter of the serum of former an less fortunate generations.

On the other hand there has been a time when the druggist in practice strenuously overreached the true province of pharmacy; when he unprofessionally catered to subtle selfish graft; when besides the advantages of the doctor's prescription he craved the doctor's puny shekel also; when he adroitly threw to the credulous public the decoys of cure-all patent nostrums as business enterprise; when he rashly detained casual complainants by his shilling hook and line of baited hazards under the guise of medicine in stock. But pharmacy in the main has risen in intelligence, has revised her inter-professional code and elevated her standards. There is more wholesome breadth and moral cleanliness that distinguish the prevailing system of pharmacy in most large towns and cities above what had formerly obtained. But human nature is rarely stable on the lines of its higher ideals. Business relations and business prosperity require continuous renewal of application. Every thoughtful practitioner of medicine must often realize that the problem of the medical and pharmaceutical relations deserves renewed and vigilant consideration, in order that needed reformative custom may be maintained. There are evils of omission and evils of commission pertaining to the interests of both the doctor and the druggist. The practice of medicine has its business aspects as importantly as it has its professional province. It is doubtless often a question which of these relations of professional life, business or medicinal, necessarily assumes the more vital consequence. The professional prosperity of the physician, and, as society has learned to gauge civil and social values, often the professional prestige of the physician, depend not only on his educational proficiency, or on his opportunity of serving the needs of an ever-ready public, but also on his ability to secure adequate and reasonable compensation for his devotion to a high and worthy calling. In every other profession and avocation this business feature of their work has ever been more definitely and reasonably recognized than in the medical. More than one physician has repeatedly found reason to feel that the ideal humanitarian embodiment of the practice of medicine has been so fostered that many people have humored themselves to the sentiment that doctors are ready conveniences without rights, whenever the latter conflict with the selfishness and caprice of those who use them.

A comprehensive glance at the inter-professional domain of physicians and pharmacists demonstrates that the office of physician is that of discerning the nature of diseases, of deciding what are the therapeutical indications of their treatment, and then either dispensing or directing, orally or by prescription, what remedies he considers proper for their relief—while, professionally, it is the office of the pharmacist to prepare, preserve, and compound the remedies needed by the physician in his treatment of disordered conditions of his patients. In the earlier days of the healing art, before it became the fashion for the medical practitioner to delegate to another class of business men almost the exclusive management of the therapeutics of medical practice, physicians furnished themselves with the remedies actually needed—and, if wisely chosen, that list is really small—they kept under their own control the knowledge and prestige of their art, attended patients at less unnecessary expense than attaches to the modern mode, were held in higher personal and public appreciation, enjoyed lucrative incomes, and were everywhere recognized as influential and honored factors of society. Furthermore, their personal familiarity with medicines naturally made them more competent to administer medicines according to the rate of knowledge then prevailing.

As the apothecary advanced from relative obscurity, and the medical practitioner reached to him the fraternal hand and professional support, the physician did not foresee that, through the system of prescription-writing and the sending of patrons to drug-stores for all needed remedies, he would be placing his professional knowledge and his business interests, day by day, year by year, continuously into the hands of the druggist, and that through these the opportunities, influence, and importance of the druggist would so rapidly augment that said druggist would enterprisingly become a thrifty business rival of the physician in a widely practical sense, while the professional consequence and prosperity of the physician must proportionately wane. What has been the development? The druggist familiarized himself with compounding doctors' formulas for relieving general conditions of disease. He also learned the facilities for appealing to an ailing public. He comprehended the velvet-gloved ease with which the passive doctors might be handled. At once enterprising druggists sprung with formidable strength the transference of the money end of drug business into an endless array of wholesale manufacturers of proprietary products. This turn of trade soon drafted willing doctors who were accomplished talkers to take the road by hundreds to boom the inexpressible virtues and values of the attractive ready-made compounds—while the slower home druggist was being daily displaced from his province of legitimate pharmacy for which he duly prepared and was graduated. Thus doctors and druggists have serenely helped to strangle their professional prerogatives, with material loss to both, until they will mutually reclaim their spheres from the strong trade current into which manufacturing syndicates of other doctors and other chemists have been successfully drawing them.

Withal I sincerely disclaim any individual reproach, but aim solely to reach some analysis of the sensitive ground touched between the individual provinces of physician and druggist. In this connection let me premise that as business men the generality of druggists excel the generality of physicians. Most druggists are enterprising gentlemen, who guard and exalt their opportunities with pious, almost Spartan, fidelity, who make their profession the medium of business, and seldom neglect any means that come within their reach to advance their pecuniary

interests. In nearly all cases of illness attended by the physician, the druggist gets immediate hold of the cash end of the account, while the doctor waits to console himself with the trust end. Ostensibly the druggist is the aid of the physician. He keeps in stock an extensive variety of remedials from which the physician is to draw supplies for patients, usually on written instructions. The druggist takes pains to solicit the confidence and aid of physicians, and expects to be materially sustained through the patronage of the physician's clients. With his eye on the main chance, the druggist makes it his rule to "never turn a customer away," lest the customer learn to carry money elsewhere. Therefore, when a physician writes a prescription that proves decidedly successful, the druggist keeps in form to take the profits of that prescription, often for the remainder of life, by unwarranted renewals. He has taken proprietary possession of it for his own gain. The prescription, being a written instruction or direction for temporary use by the individual for whom it was prepared, is placed on file by the druggist, and as often and as long as the refilling of that prescription is applied for by the first party or his friends and neighbors, it is put up without any reference to the prescriber's knowledge, wishes, or interests. This prescription may contain the snare of an opiate and alcohol and start the trains of many beguilements and harms never anticipated by the physician who prepared it for one case and time only. The repeats of a prescription for persons who apply with its number on the original box or bottle bear yet other fruit. Finding the druggist such an accommodating substitute for the physician in cases where the patient is not absolutely bedfast, and sometimes when the patient is so, there is carried on an undercurrent of medical practice over the druggist's counter, either with or without the aid of the physician's prescriptions on file.

Certain capitalists and patent-medicine speculators aim to create a profitable demand for their wares by turgid praise and misleading puffery. The persuading powers of the press are invoked to carry the glad tidings to all the afflicted. Patent-medicine almanacs and proprietary-nostrum circulars bearing the imprint of names and business address of druggists of established reputation in the neighborhood, with their gorgeous invitations to come and buy the infallible remedy, are pushed to the notice of every customer. The obliging druggist switches into his pharmaceutical province a sidetrack stock of these advertised drugs in unending variety and attraction. By the imprint of his business card on the literature of the advertised articles, he has received the compliment to notoriety gratis, and he equips his legitimate stock with a formidable array of waylaying substitutes for normal medical practice. Instead of holding the field for legitimate professional prescribing, such druggists operate as selling agents of astute nostrum-speculators for a small percentage margin; and, by the dispensation of such nostrums, whether by sample gift or by sale, the druggist constitutes himself the practitioner of quackery, virtually assumes the treatment of the innumerable complaints for which the bottle wrappers effusively invite experiment and risk. The druggist thus further curtails the physician's field of professional usefulness and support. It is apparent that patent-nostrum speculators depend on druggists to serve as distributing agents to build fortunes for the investors from the means of the always credulous public who take ventures instead of consulting the qualified physician.

If it is the moral duty of the enlightened physician to protect his patrons and the public generally from the injurious risks of patent nostrums, why is it not equally the duty of the enlightened druggist to do so also? Does he falter merely because his business code forbids him from ever missing a sale, lest the customer go to another store? Is it not because the dollar is the prime consideration to wedge itself between the physician and the public, and thus shelve a continuous share of practice safely in the hands of the druggist? Furthermore, it is the business policy of the patent-medicine advertiser to depreciate the value and standing of physicians to the public by proclaiming how many were cured by the special remedy after all the doctors failed. There is always a broad avenue open to obtain or to fabricate "testimonials" of this import. The advertising skill of ready-made single-formula manufacturers, to tempt the use and the abuse of humanity broadcast for ducats only, exceeds any other feat known to pyschological science. The special product is conspicuously posed to interest the imaginative credulous, the apprehensive anxious, the tampering venturesome, the constitutionally infirm—everybody who grasps at such straws tossed in their way by the capricious winds of chance or business finesse—and the captivating announcement always adds: "All Druggists Keep It!"

A striking instance recurs just now of a case where a highly educated lady went to and sent to her neighborhood druggist to obtain a certain advertised "Stomach Bitters" in such misguided and heedless succession that she had become a drunkard before her husband even realized the misfortune. A bunch of half-dozen or dozen bottles, which the obliging druggist was willing to consider "business," would carry her through a debauch of intoxication in her room in bed—"sick"! Another case springs to my thought. A talented clergyman, of Protestant denomination, was recommended by a druggist to try a certain popular nostrum that stares from the newspapers with a big "P" as the sure cure for nervousness. Once started, this pastor drank the subtle stuff for his nerves till it dethroned him physically and mentally; incapacitated for church work, he degenerated into a wreck of his former self, and is said to be now walking the streets vending shoestrings! Are physicians to overlook the province of pharmacists who wreck human life for the profits of trade? Who is it that repeats the unauthorized calls for paregoric, laudanum, morphine, chloral, cocaine, and patent-fraud drugs that wreck so many of the human family? Only for trade interests—only for cash gains? That with demoralizing results to the public while aggressively encroaching on the professional province of the regular physician?

A prescription for once certainly does not mean for always and evermore! A flagrant injustice is done physicians by druggists who, without being so authorized by the prescriber, indifferently renew any prescription intended by the physician for temporary employment only, and for the person only for whom the prescription was designed. This disloyalty to the confidence and the purpose of the physician practically cuts off a large measure of the just support of the physician by placing the druggist in the field as the

substitute prescriber, and presenting the spectacular prestige of surreptitiously appropriating the doctor's brain and recipe to guillotine the doctor's income. Again, unauthorized renewals endanger the physical welfare of patients by the prolonged use of potent remedies like calomel, the iodides and bromides, strychnia, belladonna, digitalis, alcohol, all narcotics—the habit of prescribing which is too often indulged in by physicians. As excuse for the commission of this wrong it was recently urged by representative pharmacists, in conference with a number of Philadelphia physicians, that the physicians do themselves the injustice in great measure by not having printed upon their inscription blanks, "Not to be Renewed." The doctrine was also advanced that, having procured the prescription from the doctor, it belonged to the patient to use as he pleased. These fallacies are adopted by druggists as their "scapegoat" to malpractice. But every fair-minded druggist knows what was the intent and purpose of the physician when he wrote the prescription that is brought to the apothecary to be filled. In its radical sense, a prescription is simply a written direction to the druggist, stating what the physician desires shall be furnished the patient at that time, and embracing the directions as to how the remedy shall be taken. This note of instructions, together with the functions performed by the apothecary, constitute simply a substitute for the dispensing of the indicated remedial by the physician's own hands, according as his knowledge, experience and judgment are brought into requisition. The patient receives the benefit of these in the doctor's conclusions and advice. If the doctor charge a fee, it is for his professional service. His direction to the druggist is an incidental matter that does not confer on the patient or the druggist the right to hazard renewals without the doctor's knowledge. Law does recognize the sovereignty of purpose—the spirit of the purpose defines the merits of the act. The office of the prescription has been a mooted question. The only problem to be grasped in defining the proprietorship of the prescription is the purpose of the prescriber. If the physician has no moral right to jeopardize the physicial welfare of a patient or the public, common sense would not so stultify itself as to extend to the druggist or public a *carte blanche* privilege of risking what the doctor himself has no right to do. It is an astounding doctrine, fostered by too many pharmacists, that the will and purpose of the prescriber are to be subverted at will by the rashness of the patient, the overreaching stealth of persons who venture to adopt prescriptions compounded for other people, and the business graft of druggists who thus expand pharmacy into a medical quack practice according to their continuous and increasing opportunities. For example, the present writer had a non-renewal notice printed across the bottom of his prescription blanks, as suggested in conference by a professor of the College of Pharmacy. A short time afterward, wishing to refresh my recollection of certain recipes that I had made for a case, I repaired to the drug store where they had been compounded. There I found my prescriptions pasted in a record-book—with all my dont's carefully scissored off! But determined to defend myself and my patient from undue risks, I next revised my method of caution, and had the following printed inseparably close preceding my directions: "Not Intended for Renewal (Without the Prescriber's Written Responsibility)." That cured them generally. But in later experience I have found it yet more satisfactory to furnish nearly all my remedies from my own private laboratory. I have by this practice discovered that patrons who believe in me believe in my medicines also, in preference to the work of the drug clerk generally. Such is the trust of human nature in a careful physician.

It is a preposterous proposition for druggists to assume that our prescriptions, representing our professional knowledge and experience, and the business prestige pertaining to these, may be trucked out at will by those whose opportunities make them custodians of our written instructions relative to cases to which we are called. Physicians have the right to protect themselves in both the professional and the business sense. It is always up to them to protect the medical province, the public welfare, the professional dignity, against the moths that riddle the livelihood of the physician with every worm of opportunity. Thoughtlessly, physicians in towns and cities have for years been geving out so much professional rope to pharmacists and the public, and in the meantime pharmacists have so industriously and energetically wedged themselves between the public and the province of the physician, that the druggist holds the front line of cash deals and the doctor is the agent of the druggist's prosperity. The former may tramp the wayside—the latter flourishes amid the gleaming beauties of palatial establishments. There is another phase of relations between physicians and druggists that has proved, in the public mind, unfriendly to the calling in of the doctor if avoidable, namely, the excessive cost of prescribed medicines. I think the ignoble race of M. D. Smarts has dwindled of later years, and a proportional approval among the public of sending for the physician more early in the case and more often has obtained. Doctors who habitually made two visits daily when one would have sufficed, and who prescribed big bottles of costly medicine, to be only a quarter used, and then changed for other big bottles at the ensuing visit, not only with deliberation robbed the purse of the patron by collusion with the druggist for a percentum share of the profits of his excessive prescribing, not only impaired the reluctant confidence of community, but wrought solid injury to the standard of the medical profession as a calling. It is the province of the physician to be loyal to the professional instincts of healing disease; to thereby help promote the elevation of the province of the pharmacist—that the public may derive reasonable benefit from both callings; that community may be especially protected from business injustice, and from the subtle dangers of excessive drug dosing and repeats of every kind that enslave the system and wreck the legitimate prospects of life.

1726 North Twenty-second Street.

There seems to be hope of being able to utilize atmospheric nitrogen in commerce, and Norway is producing 1,200 pounds of nitric acid annually from this source. The vital feature of the enterprise is the union of atmospheric nitrogen and oxygen by means of heat from a magnified electric spark. The idea is fascinating and with inexpensive power may become practical.

SUGGESTIVE THERAPEUTICS.

BY W. T. MARRS, M.D., JEWETT, ILL.

PART II.

THE preceding paper related to a general consideration of the mystery in medicine, and in this one I wish to generalize on the means and methods of applying suggestion during the waking state and also during natural sleep, leaving hypnosis proper for a subsequent article. If a person is at all suggestible the waking state is preferable to hypnosis. The main difference between natural and induced sleep is greater suggestibility in the latter.

Before proceeding I wish to preface these remarks by giving a few terms and their definitions, as they may occur in these articles. Many casual readers have a confusion of terms used in psycho-therapy.

A suggestion is any word, written or spoken, motion, voice or gesture by which the mind of another may be impressed.

A mental suggestion is a thought by which the mind of another may be impressed.

An auto-suggestion is that power by which one influences himself, it usually being secondary to some suggestion.

Suggestibility relates to one's susceptibility to suggestion.

Hypnosis is a condition of sleep or passivity during which the individual is very suggestible.

Induced sleep is sleep plus hypnosis produced by suggestion, during which the subject is said to be *en rapporte* with the operator.

A pre-hypnotic suggestion is one given before hypnosis is induced to take place during hypnosis.

A post-hypnotic suggestion is one given during hypnosis to be experienced after hypnosis.

All physicians practice suggestive therapeutics whether they will to do so or not. How often the nervous and despondent come to us with their tales of woe, and a little kindly talk and assurance from us sends them on their way rejoicing! The afflicted are quick to grasp every word, look and gesture of the medical attendant. A mother visits our office, with her little tot and remarks: "Lucy is so nervous and afraid of strangers, and it is so hard to get her to take medicine." You remark: "No, Lucy is not nervous or afraid, and she doesn't care to take medicine if it isn't bad." Are your wholesome suggestions strong enough to offset the adverse suggestions which the mother has repeated in Lucy's presence so often until the child has accepted them as truths? Tell a boy that he is lazy, dull, untruthful, all bad, and in time these suggestions become fixed principles and a part of his character. Implant in his mind suggestions of kindness, uprightness, industry, etc., and note the change. Many of the ailments of childhood are coddled and kept growing by erroneous ideas they get from their environment. Then heredity comes in for more than its share of abuse for the shortcomings, mental and physical, of both children and adults. We are prone to palliate our vices and defects and lay them at the door of heredity when perhaps our inherent laziness is the source of the trouble. Suggestion as a therapeutic agent is useful in helping the individual to gain mastery over himself, to strengthen his will and bring out his latent forces and, in fine, build up his individuality. In order to accomplish this certain conditions are essential. There must be an exercise of faith on the part of the patient—a faith inspired by confidence. This is usually the result of a harmonious mentality existing between patient and physician. Not knowing what this intangible something is we may call it "vibration" or anything we choose. Nothing is more erroneous and misleading than to call it "animal magnetism." It is simply whatever appeals to the patient's imagination which in turn produces ideation, influencing bodily functions. In psychic conditions as in nature the law of least resistance offers the greatest attraction.

When the patient has a stubborn will which is a barrier to confidence in his physician such a patient should be given a number of details to be carried out by himself. Special directions in regard to bathing, exercise, diet, etc., in which the patient is the chief actor will please his vanity and his auto-suggestion thus aroused will strongly aid in his cure. It is said that a Saxony doctor once gained a reputation for his wonderful cures by having his patients go to bed at a certain hour, telling them they would sweat profusely. He thus performed many marvelous "cures." The "temple of sleep" of the ancient Greeks possessed a catchy name. The patrons who lay down in it to sleep were in dreams told by the gods what would cure them.

A majority of people prefer some mystery in being cured of disease. There is might in the mystery of medicine. Many have a fascination for the occult and unfathomed. We all make a mistake when we let our patients know the names of any medicine they may be taking. When quinine is given it should be colored, for the average patient would think he could have as well prescribed for himself. Special suggestions should be given with each medicine. If cathartic, anodyne or hypnotic drugs are given, state in forcible terms to the patient just what results he may expect, and the result will be more gratifying to both patient and physician. Years ago before I had given psycho-theraphy special attention a lady to whom I had given a B., J. & A. P. diuretic stated that she *immediately* felt the cooling effect in her kidneys! Since then I have never given a diuretic without an appropriate suggestion accompanying it.

After all, we have few drugs of certain or specific action. We do not know how much to attribute to our drugs and how much to the auto-suggestion they inspire in our patient. That drugs are useful cannot be gainsaid, but the action of many, *e. g.*, stimulants, is simply an effort on the part of nature to get rid of them. All will admit that too much medication will make a well man sick. Conversely it is not reasonable to suppose that bounteous drugging will make a sick man well. In these days of ready-made therapeutics with concoctions and pills galore, it is little wonder that there is some guess-work about modern therapy. Our Hahnemannian friends, for whom I have great esteem, cure as many people as do those who deal out drugs in ponderous doses. A great majority of the former's sugar pills, with their infinitesimal quantity of medicine, are, *per se*, incapable of producing good or ill. This fact I have demonstrated by eating them *ad libitum*. But the Hahnemannian searches out symptoms—not a disease name—and applies his

remedy to the symptom at hand. The patient thinks of his symptom and associates with it a so-called specific for its alleviation, thus creating within him a powerful auto-suggestion. A regular physician of good ability told me he had tried everything "good for" enuresis in a little girl. Result, a complete failure. A Hahnemannian then cured her in short order. To satisfy the curiosity of the first physician the remedy was made known, it being sepia, sixth "potency," one pellet every half-hour. The regular physician stated that he afterward used this drug in similar cases, giving it every half-hour, with invariable success. Finally he began using only sugar pills (no "potency" whatever) and had even better success than when he used the sepia pellets! The constant attention and expectancy did the work.

Before dismissing the subject of enuresis I wish to state that this nasty habit is seldom dependent upon physical defects. On the whole it is habit pure and simple. If the child is under ten years of age nearly every case may be cured by suggestion given during natural sleep. Tell the child before he retires, in order to get his mind in a receptive and expectant mood, that you will talk to him while he is asleep and will enable him to control this habit. When he is asleep give helpful, hopeful suggestions as may seem best suited to his case. It is, of course, best for him to eat and drink little for several hours preceding bed-time. Many other habits and perversions may be made right by soothing suggestions given during natural sleep.

Stammering is a condition which can be cured without going to a special school for stammerers. Any physician with confidence in himself and a little persistence can cure all who desire to be cured. Here is the method: "Sit in this chair. Compose yourself, breathe regularly, relax all your muscles. Make your mind a blank for five minutes. Think of absolutely nothing. Listen to what I say. Don't in your mind 'argue the case' with me. I know what I am talking about better than you; otherwise I would stammer as you do. Breathe deeply and form the habit of breathing from the abdomen. Always speak slowly. You think like lightning. Words cannot flow quickly enough to express your thoughts. When spoken to always think over your first sentence before attempting a reply. Take a full breath and begin to speak as you expire. When your words stick, only remember to take a full breath and speak on the out-going breath."

A few lessons like this given in plain, forcible language will perhaps be all the patient will need to establish a cure. Irregular breathing has much to do in being a causative factor of stammering. Correct breathing aids physiologically in producing good speech, and it gives the patient something tangible to which to anchor his faith.

Suggestion alone or with drugs is useful in all functional ailments. The various neuroses resulting from hysteria and neurasthenia are amenable to suggestion if judiciously applied. When much good is expected from verbal suggestion a passive, receptive state of mind must first be secured. A thought repeated over and over, but couched in different words, will finally make an impression.

Nearly every person is suggestible if we only can discern what appeals to his individuality. All children and many adults are suggestible during natural sleep.

THE PHYSIOLOGY OF NUTRITION. A COMPARATIVE STUDY

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

Part II.

NOW we arrive at the vertebrates and with two cavities, an auricle and a ventricle, which is not placed, however, at the commencement of the systemic circulation, but at the origin of the respiratory vessels, and the blood which it receives, and propels, is venous or carbonized, and is transmitted along a main trunk which speedily subdivides into lateral branches, or arches, which distribute it to the fringes of gills which hang on the sides of the neck. By the action of the water on the gills the blood is aerated in its passage through them, and is then collected by a series of converging vessels which reunite to form the great systemic artery (aorta). By the ramifications of this artery, the blood now aerated is distributed through the system, and affords the requisite nourishment and stimulation to its tissues. Returning from the systemic capillaries in a venous state the blood of the head and anterior portion of the body finds its way at once into the great systemic vein or vena cava, by which it is returned to the auricle of the heart; but that which has traversed the capillaries of the posterior part of the body and of the abdominal viscera, is conveyed by a distinct system of veins to the liver and kidneys, in these organs the veins again subdivide into a network of capillaries which is distributed through the secreting structure and which serves to afford to the secreting cells the materials for their development, this being termed the portal system of vessels. From the capillaries of the liver and kidneys, the blood is finally collected by the hepatic and renal veins, which convey it into the vena cava, where it is mingled with the blood that has not passed through those organs and it thus conveyed to the heart. The blood of Fishes, then, belongs to the respiratory circulation, it propels venous blood to the capillaries of the gills, in which it is aerated, and returning from these the aerated blood is transmitted through a second set of capillaries, those of the system in which it again becomes venous, while a portion of the blood is made to traverse a third set of capillaries, those of the liver and kidneys, before it is again subjected to the propelling power of the heart. Now, the heart instead of being stronger than it is in animals with a complete double circulation (in which the greater part of the blood propelled by it only traverses one set of capillaries and never more than two), is much weaker in proportion; therefore, it is at once evident, that some supplimentary power must exist by which the flow of blood through the capillaries is aided, and on which indeed the portal circulation must greatly depend, it being requisite, therefore, that in the class of Fishes the whole of the venous blood returned from the system should pass through the respiratory organs before being again transmitted to the body, since the aerating action of the small quantity of air diffused through the water would otherwise be insufficient for its renovation. But in Reptiles, all of which

breathe air during their adult condition, the case is very different, for if the whole current of the blood were exposed to the atmosphere, before being again sent to the body, the quantity of oxygen conveyed into the tissues would be too great, and would have an over-stimulating effect. The plan of the circulation is therefore differently arranged in Reptiles, for here we find the heart to consist of three cavities, two auricles and one ventricle; from the ventricle issues a single trunk, which speedily subdivides, some of its branches going to the lungs, and others to the body. Now, the blood which is transmitted through this trunk is of a mixed character, being neither fully aerated, nor yet highly carbonized; it contains sufficient oxygen for proper stimulation of those comparatively inert animals, while it likewise holds enough carbonic acid to require being exposed to the atmosphere through the medium of the lungs. The blood which has passed through the systemic capillaries, and which has therefore been rendered completely venous, is returned to one of the auricles, the systemic, by the vena cava, on the other hand, the blood which has passed through the capillaries of the lungs, and which has therefore been rendered completely arterial, is returned through the pulmonary vein to the other auricle, the pulmonary. Thus one of the auricles exclusively receives aerated, and the other receives carbonated blood, and as both pour their contents into a common ventricle it is plain to see that it must contain and likewise propel to the general system blood of a mixed character. Now, various modifications of this form of circulating apparatus exist in the different groups of reptiles, in the lowest among them which breathe permanently by gills, like Fishes, besides possessing imperfectly developed lungs, the apparatus exhibits a blending of both plans, for a small portion of the blood which is propelled by each contraction of the ventricle passes directly to the lungs, the principal part of it being at once distributed to the gills, as in fishes. After passing through these it is transmitted to the general system and on returning thence in a completely venous state it is mingled with the blood which has been arterialized in the lungs, this latter, however, bearing so small a proportion to the rest, that if the aeration were not partly affected by the gills, it would be insufficient for the wants of the animal. The tad-poles of the common frog and water newt, as well as of other species which, like them, begin life in the general condition of fish, present a similar condition at one period of their change, at first, the whole aeration is effected by means of gills, the lungs being in a rudimentary, or undeveloped state, the entire circulation being carried on by the same means as in fishes, the pulmonary vessels being scarcely traceable, but as in the lungs, begin to be developed, a portion of the blood being sent to them and at the same time communicating passages which previously existed between the vessels that convey blood to the gills, and those that return it from them are increased in size, so that a certain portion of the blood is transmitted to the system without having passed through the gills at all, but by a further increase in the diameter of these, the whole current of blood takes this direction, the gills being no longer serviceable, and as at the same time the lungs are attaining their full development the aeration which they effect in the blood transmitted to them, becomes sufficient, and the whole circulation is thus permanently established on the reptile type. While on the other hand, we find among the higher reptiles that the circulating apparatus presents approaches to the form possessed in birds and animals, for the ventricle is divided more or less completely into two cavities, one of which propels aerated blood to the system, while the other transmits venous blood to the lungs, a certain amount of admixture, however, takes place either in the heart, or vessels, so that the blood which the body receives is never purely aerated, although this admixture is often effected in such a manner that pure arterial blood is sent to the head and anterior extremities, though the remainder of the body receives the half-arrested fluid. This being likewise accomplished in the crocodile. Now, in the warm blooded division of the vertebrates, which includes birds and mammals, we find the whole circulation possessed of a greatly increased energy, but the distinguishing peculiarity of the apparatus in these animals, of course, lies in the fact of the conformity of the heart and vessels which at all times, if perfect, secures a complete double circulation of the blood and which provides aeration for every particle, *with no admixture*. Should we now pause to inquire into the cause, or causes, by which the circulation (being nutritional) is made to circulate we find that in the great world of vegetable fibre the circulation of water laden with inorganic compounds is the result, firstly, of root pressure, which corresponds in the animal to heart power, together with other mechanical principles which directly or indirectly relate to gravity, heat, light, etc., which is largely accomplished by osmosis, from cell to cell. Pfeffer attributes the tendency of water to pass only inwards into the woody tissues wholly to the fact that upon that side of the cells which face the interior of the root the osmitic capacity is greater. Within the plant the cell walls are never saturated with pure water, but the imbibed liquid is different on different sides, and hence the plasma membrane in contact with the sides must have different capacities for osmosis.

In midwinter or early spring some of the tissues of ligneous plants are stored to a great extent with starch and other solid products manfactured during the previous season, and at the coming of warmer weather chemical changes take place, largely following absorption of water, by which these solid substances are transformed into a liquid state, occupy a greater space than before, and consequently exert a much greater pressure. The sugary sap of the maple represents that which, during the early winter, existed in the tissues as starchy matter. The evaporation of water from the surface of the younger parts of plants exposed to the air by making continual draughts upon the sources of water supply, having likewise been shown to be a great and determining factor in the movement of the nutritional stream of vegetable life, the same being counterpart with the pulmonary circulation of animals which bears so largely on the flow of blood proper. Now, as we have above seen in the lowest order of plant life, no sap vessels are required, the same being the case as regards blood vessels in animals of exceedingly low structure, and as we have further seen as

we approach a step higher, primitive vessels having, as it were, been channeled out of the tissues, nutritive material from the walls of the digestive cavity (as in the Jelly fish) on which it is spread out, is absorbed just as the roots of plants absorb from the soil. And as we go a step higher we find that some one portion of the principal vessel is peculiarly endowed with contractile power, which can be seen in constant pulsation, and which, to my mind, is to be viewed as the primitive promise of a future heart, and heart power. Indeed a striking analogy being that in the embryo of the human species at a corresponding stage of development, presents a like structure, for the heart at the time of its first formation is a mere dilatation of the principal vascular trunk, having thickened walls, in which after a time muscular fibre, of which the heart shows the largest, most powerful, and greatest aggregation, is by no means limited thereto, but indeed as we go higher in the animal scale becomes distributed, and evident, in all parts of the arterial system, and therefore becomes a great and determining factor in the onward flow of blood.

Now, this muscular power is found, upon examination, to be inherent in the tunica media or middle coat of the artery, and to likewise form the more characteristic part of its structure, being a mixture of elastic tissue and unstriated muscle, being much thicker in arteries than in veins, where its special functions are not required, and what is vastly more important, differs somewhat in character in arteries of different calibre, being much thicker in the larger vessels. Now, this change occurs gradually in passing along the diminishing branches. In the large arteries and the arterioles, the middle coat differs essentially both in structure and in function, and in each class of vessel it forms the most important part for the due performance of their respective functions. In the large vessels it is made up of fibres, and sheets of elastic tissue, woven into a dense feltwork, interspersed with a few muscle cells, while in the smallest, or arterioles, on the other hand, the great mass of the middle coat is made up of muscle cells, the elastic tissue being but sparsely represented, but between the large arteries and the capillaries every grade of transition may be found the elastic tissue gradually becoming less abundant and the muscle elements relatively more numerous in proportion as the capillaries are approached. And thus it will be plainly evident that where we here have a protoplastic blood flow, that is, that evolved from out the nutritional itself we have protoplasm, the physical basis of life, and what is vastly more important to us as physicians, *that protoplasm is capable of self-nourishment, which means that the individual cell is capable of absorbing within itself such material which in the ultimate, suffices for the proper nourishment of the same, and if the individual, then the cell mass, whose typical structure we find in vegetable organization and indeed more highly so in the protozoa.* In all organic life as have the nutritional, nutrition, indeed, *being life*, from the material standpoint. In all vegetable life, plus all organisms devoid of a nervous system we have a protoplasmic examplification of the nutritional, which is cosmical. In all organisms of a higher grade we have the nervous, which governs. Therefore, we at once see, that on the lower, or protoplasmic side, we have that which evolved from without itself, is self-sufficient, because, being organically cosmical, it is of necessity nutritional, and what is materially nutritional, is life itself, one-half expressed, but we have seen that while protoplasm is capable of self-nutrition, that is, of absorbing within itself nutritive material and assimilating the same, that while as in all vegetable structure, and in all animals devoid of a nervous system (being the Protoplasmic cell mass) this function is likewise manifest, that as we go higher in the scale of organic life and approach man, we find that this fundamental principle is not lost, but that it actually gains in power the higher we go, for not only do we find (as in the ringed worms) increased segmental vascular power, which in the ultimate subserves the immediate and remote nutritional ends thereof, but likewise do we behold throughout the organic scale that this power is never lost, and that nutritionally the Protoplasmic, being self-sufficient, is therefore vital, that the arteries possessed elastic resiliency and vital contractility which to a certain extent in itself regulated the flow of blood to a part was long ago observed; in fact, John Hunter himself noted the effect while studying inflammation. Now it is well known that the arterial system possesses nearly the same relative capacity in every part; that is, if a section could be made through all the systemic arteries at a certain distance from the heart, the united areas would be found equal to that of the aorta; and those of the pulmonary arteries would be equal to those of their trunk. Again, it must be entirely plain that should pressure be equalized throughout a tube, owing to the same, its flow ceases, a liquid flows through a tube as the result of a difference of pressure in its different parts, the liquid moving from the part where the pressure is higher toward that where it is lower, except where sudden and great variations of calibre take place which is never the case in the arterial system, the energy of flow corresponding with the amount of difference in the pressure and varying in proportion to it. This, therefore, becomes the function of Protoplasm, for, as in the single cell, we found it capable of self-nourishment, *so in the aggregate is the power not lost, but retained,* and the blood which flows we have in the present instance assumed to be normal, both in quantity and quality, being likewise but protoplastic in function and the carrier of nutritive principles is according to the present system, but accessary and nothing more, continuing its uninterrupted flow from a higher to a lower pressure upon mechanical principles solely, but which, as we have seen in organisms of a low order, is sufficient for the nutritive maintenance of life, and as we approach Man a closer examination reveals the fact that this great and fundamental principle is in nowise lost, muscle cells having long since been found in the middle coats of the arteries whose distinctive function has been found to consist in the regulation of the diameter of the tubes in accordance with the quantity of blood to be conducted through them to a part, *and the same being Protoplasmic.* Again, while on the one hand we find that protoplasm, whether we regard it as a single cell, or as a specialized aggregate, is capable of self-nourishment (vessels being finally evolved and perfected the higher we go) and which, as in vegetable structure, consists only of

straight channels with no power of contraction, which in the lower animal, by the evolution of muscle cells, retain a certain power of motion, likewise subserve a nutritive end, it must be entirely apparent that were this all concerned in the ascending scale of life man could never have reached the exalted position he occupies. The first definite knowledge concerning special nerves (to which our argument now directs itself) for the control of this same muscular wall of the vessels we owe to the researches of Claude Bernard, who showed that cutting the sympathetic nerve in the neck was followed by an increase in temperature of that side of the head and a great dilatation of the arteries; it being further observed that stimulation of the superior ganglion of the sympathetic would bring about an opposite result, viz., a fall in temperature, and contraction of the vessels on the side at which the stimulus was applied, if the stimulus was increased, the vessels contracted more than normal, by cessation of the stimulus they became dilated above the normal, and the temperature again arose. From this it was concluded that the sympathetic in the neck contained constrictor fibres which conveyed impulses causing habitual tonic contraction of the vessel wall corresponding to what was already recognized as arterial tone. Now, on section of the nerve the tonic contraction disappeared, but on gentle stimulation it reappeared, and if more strongly stimulated an excessive contraction set in, causing occlusion of many of the vessels, *subsequent experiment having shown that all the vessels are supplied with similar power* by reason of the vaso-motor, constrictor, nerves; section of which causes dilatation of the vessels while stimulation causes contraction, in the territory presided over by the stimulated nerves. *Upon which dual function or principle, which on the one side becomes dilatation or plethora, while on the other, it becomes, contraction, or anæmia, both being nutritional, to my mind belongs all there is of visible and tangible phenomena,* an interpretation of which I shall attempt to give in essays following.

DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KIDNEY.

BY GEO. R. REYNOLDS, M.D.

PART II.

IN former years it was believed that tuberculosis of the kidney was usually an ascending infection from the sexual organs; but on the contrary, it has been conclusively shown that as a rule the process begins primarily in the kidney, and is a hæmatogenous infection. Cases of tuberculosis of the kidney are generally unilateral in the early stage; it is much more frequent than has been hitherto supposed, and it occurs very much more frequently than it is diagnosed, due partly to the fact that except in a certain stage the disease gives practically no symptoms, and according to Carter, that sufficient emphasis has not been laid on the presence of cloudy purulent urine. The usual objective symptoms, such as pain on urination, increased frequency of urination, pain in the region of the kidney and tenderness of the kidney, may be entirely absent; one rather important symptom is the occurrence of attacks of colicy pain, assumed to be due to a temporary obstruction of the ureter, while the appearance of the patient may be indicative of the best of health. The condition of the urine is of the greatest importance, especially the presence in it of tubercle bacilli, which occur in about 80 per cent. of the cases of tuberculosis of the kidney. The absence of all forms of bacteria from the urine of cases of cystitis is strong presumptive evidence of tuberculosis, and to determine the presence or absence of tubercle bacilli the inoculation of guinea pigs is often indispensable. The use of tuberculin is sometimes of value, although much less positive in its indications than in tuberculosis of bones and joints. Frequently there is some doubt as to whether the kidney or the bladder is the site of the tuberculous infection; in doubtful cases of tuberculosis of the urinary tract in which the genital apparatus is not involved, the infection is usually primary in the kidney, and only in rare instances does primary tuberculosis of the bladder occur. Even the cystoscopic picture may sometimes seem to indicate the presence of tubercles in the bladder when on more careful investigation this is found to be due to the so-called cystitis granulosa. The functional investigation of both kidneys separately is also of great value in determining if only one kidney is affected, and also whether or not the other kidney is capable of carrying on the work. The inoperable cases usually run a rapid course, occasionally they pass over into a chronic condition; individuals with tuberculosis of the kidney who were in a condition to undergo an operation, and did not have it offered a very bad prognosis. The disease usually extends to the ureter and bladder, and frequently metastasises to other parts of the body. Even in cases where the process remains localized in the kidney the toxic effect upon the general system is bad. The tuberculous process in the kidneys usually progresses rather slowly, but as soon as distinct suppuration is evident those patients suitable for operation should have one. The fact that the patient's general condition is bad is no contra-indication to the operation if the process is localized in one kidney. Another desirable feature of a case to be operated upon is a good heart action. If one studies the cases from the literature carefully it is apparent that heart failure has often been the cause of death; for it is a well-known fact that nephrectomy puts great demand upon the strength of the heart, and marked arterio-sclerosis is a contra-indication to operation. Tuberculosis of the bladder is in itself no contra-indication and the determination of the sufficiency of the other kidney is of the greatest importance. The failure to carefully investigate this has been responsible for the relatively high mortality following nephrectomy in tuberculosis of the kidney. The comparison of the mortality following nephrectomy before and after the introduction of the catheterization of the ureters is striking, according to Casfer. Of twenty-eight cases of death following nephrectomy, in cases in which the ureters were catheterized, 22.7 per cent. were the result of insufficiency of the kidney, while of thirteen deaths following nephrectomy upon cases in which the ureters had been catheterized only 7.7 per cent. were due to renal insufficiency.

Studying the operation to be selected, it is well to note that Abbé reported a case of hydronephrosis, in which the kidney was removed by an unusual method. He made an incision from a point 1 inch inside the anterior superior iliac spine, upward and backward for 4½ inches in a line parallel with the fibres of the external oblique muscle; after separation of the fibres of the abdominal muscles, as is done in McBurney's

method for appendicitis, the peritoneum is freely exposed, and can be readily stripped from the front of the kidney. By using good retractors, the surgeon can now inspect the pedicle and separate the ureter, which can be followed to the brim of the pelvis. This method, it is held, allows nephrectomy to be performed in the most advantageous position for both patient and operator. It gives free access to the kidney and ureter, and is almost a bloodless method, as no muscles are cut across. As each abdominal muscle is divided in the direction taken by its fibres, the deep portions of the wound readily fall together, and there is less tendency to hernia. Mayo Robson has a similar method as follows: The incision beginning to the inner side of the anterior superior spine of the ilium, is carried backwards obliquely towards the tip of the last rib. The fibres of the external oblique and its aponeurosis are then split and retracted, exposing the internal oblique muscle, the muscular fasciculi of which are split in a line between the ninth costal cartilage and the posterior superior spine of the ilium, in which position they are longer than in front of or behind that line. When the fingers are pushed through the internal oblique to split it, the fibres of the transversalis are pierced, and can be retracted along with the oblique muscle. A diamond-shaped space is thus formed, at the bottom of which is seen the transversalis fascia, which is then incised, exposing the perirenal fat, and on pushing the fingers through this the kidney is easily reached, in whatever position it may lie. If needful, the whole hand may be introduced into the perirenal space, and the kidney can be grasped and freely manipulated, the retractors for the moment being withdrawn. If the vessels are moderately long, and in all cases of movable kidney, the organ may be brought through the wound and explored by incision or by needling, or it may be examined by the selenium screen and the Röntgen rays. Should a calculus be found it can be extracted, and the wound sutured before the organ is returned; the kidney, if not removed, is replaced, or if not disturbed from its bed is left in position. The cavity is then sponged out, and on withdrawing the retractors the muscles at once fall together, and may, if thought desirable, be sutured with two or three interrupted catgut sutures, the skin incision being brought together by interrupted silkworm gut sutures. The advantages of this method of exploring the kidney are as follows: (1) There is no division of muscles, and therefore no weakening of the abdominal wall, immediate or remote; (2) No vessels are divided, thus not only saving time, but rendering healing per primam more likely; (3) No nerves are severed, and therefore paralysis of the rectum and other muscles is avoided; (4) The operation is done with the patient lying on the back, to the great convenience of the anæsthetist, the operator and his assistants, and to the manifest advantage of the patient, who is saved much unnecessary disturbance; (5) The great saving of time, as well as the diminution of hæmorrhage means lessening of shock, thus rendering operation feasible when it otherwise might be questionable; (6) It is an important fact that diagnosis in kidney cases, especially in renal calculus, is by no means perfect, and if it can be proved that an exploration of the kidney can be done quickly with little or no danger and without any subsequent weakness being left, the physician will be less loth to permit, and the surgeon to perform, an exploratory operation after all other means have been fruitlessly tried; (7) Lastly, after such an operation convalescence is materially shortened, as the patient may be safely allowed to be up at the end of the second week, or even earlier.

In the treatment of tuberculosis of the bladder, Horwitz recommends guaiacol (3 minims increased to 20 minims) and creasote as the best anti-tuberculous remedies, while salol, resorcin, boric acid, salicylic acid and methylene blue are the most successful antiseptics, being indicated when much pus is present in the urine. Vesical irrigation has little effect unless the urine contain large quantities of pus, in which case the following may be useful: normal saline solution, boric acid saturated solution, or a weak solution of salicylic acid introduced by hydrostatic pressure, while Jamin uses iodoform suspended in liquid vaseline; 1 to 2 drams of a 5 per cent. solution is injected daily. Very marked improvement was seen in some of the cases treated. Hydraulic distension of the bladder in cases of vesical tuberculosis was introduced by Young, and has not yet received an extensive trial, but Battle obtained very marked improvement in an undoubted case of tubercle, involving the bladder and the epididymis on both sides. A column of water, four feet high, was sufficient to distend the bladder with 4 ounces of water. This was repeated daily, on the first occasion under an anæsthetic, but subsequently without any. Nocturnal frequence diminished from seven or eight times to twice, and diurnal from twelve to four times.

THE PHYSICIAN'S VIEW OF APPENDICITIS.

BY M. M'CRORY, M.D.

STUDYING 240 operations, Brewster believes that delay in operating is indicated in mild cases in which there is no doubt about the recovery without operation and that immediate operation is indicated in all other cases of acute appendicitis. But how are we to tell what cases are "sure to recover"? The writer remembers one case that showed no urgent symptoms ever, and ran on with very mild attacks for nearly two years. When operated on a bad mess was found which made the operation quite prolonged and serious in character, and yet the case was never acute enough for the surgeon to feel that he should force an operation, for the patient was most unwilling, always leaving it to future time. In this connection Bernay writes as follows:

In all cases of acute appendicitis the administration of food should be very small, and cathartics and large enemata of warm water should be given regularly without regard to the treatment contemplated; of course, the ideal method of treatment is the operative method carried out in the beginning of the attack, but, if for some cause this time has been allowed to pass, the expectant treatment will often give better results than the operative, never having seen escape of intestinal contents caused by the cathartic, either into the abscess cavity or the peritoneal cavity. Rest in bed, with large, moist warm antiseptic poultices over the abdomen is also recommended. The regular use of cathartics will materially decrease the mortality of acute appendicitis, according to Bernay, no matter what other methods are followed later.

The change of name to appendicitis from perityphlitis came from a more exact knowledge of the pathology of the disease, which demonstrated that in a very large

majority of cases the inflammatory process has, as its starting-point, some change in the vermiform appendix, comprising the retention within the appendix of fæcal concretions or foreign bodies, and the retention within its cavity of the secretions from its mucous lining, owing to the obstruction of its communication with the cæcum. Distortion of the appendix by adhesions contorting it, and its fixation behind the cæcum or in certain peritoneal pouches near, disables it from ridding itself of its contents, and so produces further inflammatory changes. Although appendicitis varies in its intensity, its prognosis and treatment, there are certain features generally to be recognized; thus the attack is usually ushered in with vomiting, but as soon as the patient is placed in bed and properly dieted this may subside, but it can easily be reproduced by want of care in the management of the patient, and in the acute and most severe cases, it is often difficult to control. Persistent vomiting is a symptom of extreme gravity which points to the need, unless contradicted by other features, for immediate operation. Fever is always present at the commencement of the illness, even in the mild cases, ranging from 100 degrees to 103 F. in the early stage. Under treatment it subsides in a day or two to normal or nearly so in the mild cases; in others it may assume a hectic type, and in a few it may remain constantly high, in which case it is of serious significance. With a fever there is a quick pulse, but a point of importance is that in some cases it may be unduly quick in relation to the temperature. Rigor is exceptional, even though a large collection of pus exists. The tongue is heavily coated with a yellowish white fur, and the bowels are nearly always constipated, but diarrhœa may appear instead. The swelling found in the iliac fossa has been regarded as a fæcal collection, but this is unusual, and it is due rather to inflammatory infiltration of the peritoneum, the walls of the appendix and intestines, and of the abdominal wall. I place great stress on the facial expression; in the early stage in most patients it is suggestive of pain, and in the more acute cases this is particularly true. Should the face express much pain on the third or fourth day of the attacks, the patient being in bed and properly treated, and there are severe local tenderness and other symptoms, it is of value in pointing to the necessity for operative interference. Beyond this facial expression of mere pain there is the classical "pinched face of peritonitis," and in a few cases the face is grey or earthy. The abdominal pain is a constant factor, and in the early stages it may be in any part of the abdomen, later localized in the right iliac region, or at all events having its greatest intensity there; next to pain in frequency is tenderness over the site of the appendix, which may be over a very limited area, on a line from the right anterior spine to the umbilicus, but the tenderness is generally much more extensive, spreading over a space the size of one's palm. The more extreme the pain and tenderness, the graver the case. A distinct tumor is usually to be felt. Its position varies somewhat, extending in some cases as low as Poupart's ligament, at others upward and outward the right lumbar region into the part occupied by perinephritic abscess. Usually, however, its surface is not more than two to three inches square. A swelling is not felt in some acute cases because of the tenderness preventing complete examination, but even under anæsthesia I have found that in a few cases, and these among the most anxious and severe, no tumor can be found, but its absence must not be taken as negativing the existence of appendicitis. The evidences of suppuration, viz., fluctuation, and redness and œdema of the skin over the inflamed area, may be absent when pus exists, and it is quite unusual in my experience to get the feeling of fluctuation unless one has waited a dangerous time. The abscess will have been recognized by other indications, and will have been evacuated before this symptom can be made out. Nor should redness of the skin be waited for, while œdema, by careful examination with the tip of the finger, is more often recognized, and if present is a valuable sign. Another local sign sometimes present is interference with the function of micturition. Pain is complained of when the bladder becomes distended and a dread of emptying it because of the pain caused by the contracting organ; the pain and frequency of micturition may be the chief cause of complaint. General distention of the abdomen, associated with tenderness, has its usual dread significance of peritonitis, and in cases under observation should never be awaited, but should be anticipated by operation as soon as there is suspicion of distension spreading from the right iliac region. The disease is so variable in its severity and danger that it is absolutely necessary to classify the cases into several groups. Any classification is open to criticism, but no confusion is likely to arise if it is borne in mind that there is a certain amount of overlapping of the various groups, cases presenting themselves which are on the border line of two groups, and it is doubtful to which they should be assigned. The most comprehensive classification is as follows: Class 1. Mild Appendicitis. Class 2. Appendicitis with Distinct Abscess Formation. Class 3. Acute Perforating Appendicitis. Class 4. Relapsing Appendicitis.

Poirier states the general opinion of French surgeons in the following appendicular axioms: (a) There is no medical treatment of appendicitis; (b) In acute cases operate as soon as possible after the diagnosis is made; (c) Operation in doubtful cases is better; (d) In subacute cases one may wait and operate a froid; (e) Suppurative appendicular peritonitis demands instant operation; (f) In slight cases it is less dangerous to operate at once than to wait and operate a froid, and the diagnosis in the early stages is not easy; (g) Resection of the appendix should be done in every case if the search for it does not involve much injury to the neighboring tissues. The majority of English surgeons do not subscribe to these propositions, nor do many American surgeons.

As to the operative details Porter states correctly the truth when he wrote that purgatives should never be given in acute appendicitis before operation. Ochsner's treatment is the best to adopt from the onset of an attack, to carry out when operation is refused, and to employ after operation in the majority of cases. Until the superiority of conservative treatment has been satisfactorily demonstrated immediate operation will be urged by the majority of surgeons in most cases of acute appendicitis in all stages. The present tendency of surgery is to become more and more conservative; and conservative treatment may be advised in certain cases of acute appendicitis in which the symptoms of rapid septic absorption are out of all proportion to the evidences of peritonitis. Also, when there is evidence of recent improvement, or the condition and surroundings of the patient are unfavorable. Ochsner's treatment should be advised in most cases of spreading or

diffuse peritonitis if a reasonably good surgeon cannot be obtained. Irrigation of the general peritoneal cavity should not be undertaken unless the conditions are such that it can be thoroughly performed, being indicated in recently diffused processes, particularly if the previously unirritated peritoneal cavity has been suddenly infected through rupture of an abscess and used in some cases of spreading infections without adhesions, though local operation is probably preferable. After irrigation, the danger of increased absorption is prevented by a tube or cigarette drain to the bottom of the pelvis or, in women, vaginal drainage, with exaggerated Fowler's position for from twenty-four to thirty-six hours. The rapidity with which local operation with pelvic drainage and Fowler's position can be performed makes it the method of choice in very serious cases, in those with marked distension, and in operations outside of hospitals. Ochsner's routine, with turpentine stupes to the abdomen, is the best treatment for the first forty-eight hours after operating.

Vischer suggested a new incision for removal of the appendix; in this procedure the incision commences at the outer edge of the external oblique, runs forward an inch above and parallel to the crest of the ilium, as far as, or even beyond, a point corresponding to the anterior superior iliac spine. After division of the skin and aponeurosis, the external oblique, which is well developed at this point with its fibres running vertically is separated, and then the fibres of the internal oblique and transversalis are separated; the transversalis fascia and peritoneum being then divided in a vertical direction. The incision will be found to have opened the peritoneal cavity at its lower most plane, and near to the attachment of the cæcum. A finger now being introduced invariably comes into contact with the caput coli, which can be readily drawn into the wound, facilitating the search for the appendix. The advantages claimed for this incision are: (1) From the position of the wound it is almost impossible for hernia to occur, even when it is allowed to heal by granulation; (2) It offers a dependent point favorable for drainage; (3) The cæcum and appendix are easily found. The greatest disadvantage is that in the corpulent the depth of the wound may make manipulation difficult.

Czerny and Heddæus give notes of several series of appendicitis treated during the last five or six years, in Czerny's clinique. The series of cases consist of twenty-eight of chronic appendicitis, thirteen of subacute perityphilitic abscess formation and fifteen cases of acute perforation. Notes of the cases are given. They divide their material clinically into the following classes: (1) Acute perforation of the appendix. (2) Subacute perityphlitic abscess; (a) caused by pus organism of different kinds; (b) caused by acting omycosis. (3) Appendicitis simplex chronica; (a) tuberculous; (b) ulcerating and obliterating forms; (c) catarrhal inflammation. The conclusions they come to are as follows: (1) The first acute attack of appendicitis belongs to the domain of the physician. Treatment, quieting of the intestines by means of opium, ice, etc. This attack can either: (a) pass away without any further complication, or (b) may sooner or later lead, with alarming symptoms of a general and local nature, to perforation with abscess formation. This abscess may lead to general peritonitis or may remain circumscribed; in either case surgical interference is necessary. (2) All chronic relapsing forms, whether purely catarrhal, ulcerative, perforating or partially obliterating, belong to the domain of the surgeon, because they form a constant danger to the existence of the patient. Observing how easily the peritoneal coat should be peeled from the proximal portion of the appendix, Isaacs utilizes the same principle in dealing with the whole appendix when adherent. Having tried this method in a number of instances in which conditions called for it he has found it of decided advantage, for it saves considerable time and trouble, shortens the operation, and spares considerable handling and manipulation of the viscera. The method is especially useful in those cases of extensive adhesions where but a portion of the appendix can be located, be it either the proximal or the distal portion, and where the rest loses itself in the adhesions and cannot easily be traced. It is as follows: Having located some portion of the appendix, preferably the proximal, the capsule is incised longitudinally, opposite the mesenteric attachment, if possible, so as to avoid the larger blood vessels. The hemorrhage is significant. The white glistening surface of the middle layer is the guide to the depth of the incision. The incised serous coat peels off very easily, and the core can be easily separated and raised from its bed without fear of hemorrhage. This white core serves as a guide to the capsule, inside of which it can be loosened up a short distance, then the capsule is split for that distance, and the procedure is repeated until the whole length is delivered. A perforated or gangrenous appendix merely makes conditions somewhat more difficult; the decapsulation can be accomplished just the same. As an illustration of the utility of the method, Isaac gives in detail the history of two cases.

Richardson considers the indications for operation, the cause of death, the objection to operative treatment and the remedy for the evils of indiscriminate operating by inexperienced men. In the past year out of 112 operations he had three deaths. Of the total number of operations a large majority were interval operations, in which he has had as yet no deaths, although the total number is nearly a thousand. His total mortality for the past year, between 500 and 600 operations of all kinds, was seventeen, while on the question of immediate operation versus delay is answered by Fitz as follows: The physician is justified in delay until the conditions call for an immediate operation. These may be present at his first visit or may not appear until a later period. If, after twenty-four hours, there is no improvement, and especially if the fever increases, an immediate operation is preferable to further delay.

The importance of rectal examination in doubtful cases of appendicitis is apparent, for an abscess from the appendix may lie within the pelvis and evade superficial examination; in these cases the point of tenderness is frequently absent, the rigidity of the rectus muscle may be absent or modified, and no tumor may be found in the iliac fossa. Stirling thus tabulates the more frequent complications of appendicitis that may upset all plans of treatment, even with the most careful technique: (1) General septic peritonitis; (2) Intestinal obstruction due to kinking of the recently separated intestine or to adventitious bands; (3) retroperitoneal abscess; (4) fæcal fistula; (5) multiple abscesses of the liver; (6) gangrene

of the cæcum; (7) phlebitis of the femoral vein; (8) communication of the abscess with the rectum, vagina or bladder; (9) ventral hernia, which is said to be a frequent sequela in America; (10) fatal hemorrhage, Gryany mentions one case from ulceration of the deep circumflex artery; Fowler another from ulceration of the iliac vein; (11) parotiditis; (12) empyema; (13) pericarditis.

Brewer gives notes of four atypical cases which are interesting. One was where an inflamed appendix was found after much trouble in a large subcæcal focca which was lined with peritoneum and had no connection with the general peritoneal cavity; another had a large retrocæcal abscess caused by an inflammation of an extra peritoneal, retrocæcal appendix; the cellulitis so caused spread upward to the kidney and downwards to the external abdominal ring, where it rapidly spread in the loose subcutaneous areolar tissue. In the third case the diagnosis for some time wavered between typhoid fever, early extra uterine pregnancy or suppurating cyst of the ovary or broad ligament; an intra-abdominal abscess was opened when it was found to be due to appendicitis. Robinson relates four cases of appendicitis with unusual and interesting complications. The four cases had suppuration in the neighborhood of the liver as a sequel of appendicitis. Morrison has drawn attention to a space behind the right lobe of the liver, bounded internally by the duodenum and foramen of Winslow, below by the heptic felxure of the colon, and posteriorly are the reflected peritoneum from the liver, the right kidney and the posterior abdominal wall. In this space an abscess may form after appendicitis. The lesser sac of the peritoneum is probably shut off easily adhesions about the foramen of Winslow. Infection may also extend from this space over the anterior and superior surfaces of the right lobe of the liver round the inferior margin or round the edge of the right lateral ligament forming a subsiaphragmatic collection. The recumbent position, and the inclined plane on the outer side of the ascending colon leading to the space over the head of the right kidney are, with the absence or weakness of limiting adhesions on the outer side of the cæsum, factors of importance in the accumulation of pus beneath the liver. The following points are deduced from the four cases quoted: (1) In a small proportion of cases of appendicitis with abscess there is intra-peritoneal extension to the liver region; (2) in relation with the liver pus may be only below it or also above it, "subdiaphragmatic"; (3) clinically there is considerable difficulty in determining where the aparent upper border of the liver is raised, how much of this is due to simple displacement upwards by a fluid collection or to a subdiaphragmatic abscess, or to an associated lesion at the lung basis. These collections of pus are intra-peritoneal and not subserous. Extensive operations for fæcal fistula following appendicitis are a mistake, and are often fatal, for the fistula in most cases finally heals, although a long time may elapse before this occurs. Delivery of the cæcum through the abdominal wound is rarely necessary and may lead to abdominal distension. In sewing up the abdominal wound he transfixes the whole parietes with fishing gut sutures, and does not suture the layers separately. For abdominal distension he uses a large injection containing Rue for the simpler cases; if this is insufficient he gives 6 drachms of castor oil with 10 or 15 drops of laudanum, or if there is vomiting, 5 grains of calomel. To avoid hernia in operations for suppurative appendicitis. McBurney's intermuscular or muscle incision should be used, for it avoids the division of nerves beyond obviating mechanical and cicatricical weakening of the wound; the wound must be closed as much as possible by sutures; provisional or secondary sutures are then passed into the part left open for drainage, or the gauze drain may be removed early to avoid the walls of the cavity becoming rigid. Woolsey, after pushing the gauze through the nearly closed wound, wraps round the portion passing through the wound a piece of rubber tissue; this prevents the gauze from sticking to the edge of the wound, and thus allows it to be withdrawn on the second day without dangerous traction on the structures beginning to heal.

As to the method of opening the abdomen in appendicitis, Harrington considers McBurney's gridiron incision ideal for a large majority of the interval operations, and if more room is needed the incision may be enlarged, the so-called "extended McBurney incision." Nearly always Harrington makes it a rule to enter the free abdominal cavity beyond the appendix and the inflammatory mass in order to examine for secondary abscesses and to determine the condition of the rest of the abdomen. Should the appendix mass extend beyond the semilunar line it is better to open the abdomen by a vertical incision through the rectus sheath and separate the rectus muscle or to retract it; if it extends to the middle line or beyond, Harrington opens in the middle line. The rectus incision for the interval operation is a good one, but has the objection that if drainage is found to be necessary the oblique and transversalis muscles, when they contract, tend to spread the opening in the rectus muscle and sheath.

Appendicitis may appear in pregnancy. Thus a patient, aged 40, was seized with pains in the lower right half of the abdomen during the fifth month of pregnancy. Pain continued and was accompanied by constipation, but no vomiting. Poulticing relieved the pain for a few days, when it returned, accompanied by fever, constipation, swelling and tenderness in the right iliac fossa. She had two similar attacks previously during pregnancy, and at about the same time; the diagnosis of suppurating appendicitis was made. An incision through the parieties in the usual place allowed the omentum to bulge forward into the wound; this omentum covered an abscess cavity containing about three ounces of pus. A gauze drain was inserted and the patient was put back to bed. Pregnancy was advancing and the movements of the child were both seen and felt, which did not tend to the formation of a good scar. Eventually, however, the wound closed. A month after the operation the patient miscarried, the child being dead. There were no complications, and the woman made an uneventful recovery. In view of the rapid growth of the uterus during the latter months of pregnancy, the advisability of procuring miscarriage should be considered. For some days after operation the wound seemed to get more and more extensive and gaping, and omentum was protruded. They felt that when the wound did heal several unpleasant possi-

bilities might present themselves during labor. The scar, recent and thin, might rupture; a large ventral hernia in all probability would form during labor, with possible intestinal construction as a result, or afterwards, in which case a second operation would be necessary. The risk of procuring miscarriage was thought to be sufficiently great to counterbalance what were only reasonable possibilities or probabilities, and nature finally and fortunately came to the rescue and solved all difficulties.

Or appendicitis may follow the puerperium, as pointed out in an editorial in the *Journal of the American Medical Association*. "Microrganisms of various kinds, under certain circumstances, may beeome so walled off as to be rendered innocuous and yet retain their vitality within the tissues for many years, which has been demonstrated with absolute certainty in such diseases as tuberculosis and typhoid fever, and it is no longer a matter of surprise to find that an abscess in bone developing many years after an attack of typhoid fever may yet contain the typhoid bacillus in pure culture. It seems not unlikely that certain intra-abdominal conditions, after being for the moment acute, may become so walled off as to be a source of no further immediate danger and yet the micro-organisms present may retain their vitality. Acute oophoritis, for example, may cause a protective reaction sufficient effectually to occlude the infected part from surrounding tissues, and, in the same way, an appendicitis that has gone beyond the catarrhal stage may lead to the formation of adhesions that effectually protect the peritoneum."

It is easy to understand that during the serious intro-abdominal disturbances consequent on the enlargement of the uterus during the puerperium and then its rapid evacuation and firm contraction immediately after labor, the adhesions formed may be so disturbed as to permit the escape of micro-organisms into the tissues. In not a few cases of puerperal fever it has been noted that there are no signs of infections in the vagina itself or in the uterus, and local treatment of the external genital tract does not produce any material modification of the symptoms. Instead, then, of considering that the infection in such cases must necessarily be from the exterior, it seems justifiable to trace it to some internal source; a careful history of the patient may disclose the occurrence of attacks of appendicitis or of oophoritis that would give a clue to the origin of the infectious material producing the septic process. This gives the clue for treatment in cases that are otherwise hopeless; when there is a history of any previous symptoms of appendicitis, an exploratory operation, undertaken not long after the first symptoms of fever are noted, might prove life saving by furnishing the opportunity for the evacuation of the infectious material pouring into the tissues. Should the genital tract not furnish any evidence of infection having taken place from without, a very careful investigation of all the antecedents of the patient should be made in order to determine whether there may not be some indication for surgical interference for other conditions. Besides appendicitis, a history of previous abdominal operation that may have been followed by the formation of adhesions between the intestinal and the genital tracts must not be overlooked, as along such adhesions intestinal micro-organisms not infrequently find their way. Genito-urinary specialists find traces of colon bacilli in the bladder whenever adhesions between that viscus and the intestines are known to exist, and a splendid opportunity exists for a more thorough individual study of cases of puerperal fever along this suggestion.

ANTISEPSIS AS A FACTOR IN MEDICAL TREATMENT.

Healthy tissues oppose considerable resistance to microbic invasion; this resistant power may be reduced or altogether destroyed by a variety of conditions, either inherited or acquired. The acquired predisposing conditions, according to Carter, may be grouped under the five following heads: (1) Blood-poisoning (toxæmia); (2) mechanical or chemical injury; (3) mal-oxygenation; (4) deranged innervation; and (5) defective nutrition. These conditions constitute in the vast majority of cases the necessary precedent of microbic troubles, and it is most important to bear these facts in mind, because the same conditions which favor the primary invasion of microbes, unfortunately equally favor their subsequent development and multiplication, and consequently the observance of the same precautions which assist in protecting the body from the invasion of infection render material assistance in arresting its progress. The absorption of the products of gastro-intestinal putrefaction include various substances of an alkaloidal nature, also various acids, and ammonia compounds such as leucin, tyrosin, indol, skatol; undigested alimentary residues, and unabsorbed peptones become readily converted into products which are more or less toxic, but ordinarily toxic disturbance does not occur, because of the strongly antiseptic property of the acid gastric juice of the regular and progressive character of the digestive process, and because the contents of the alimentary canal are not unduly delayed before their final expulsion from the body; also rapid elimination by the kidneys of the small amount of toxic matter which is actually absorbed into the organism.

Toxæmia from the absorption of putrefactive products is important from its important relation to infective disease proper, for it is a powerful predisposing cause of infection as it depresses the vitality of the patient, and it profoundly modifies the evolution of, and impresses an unfavorable character upon, infective disease in actual existence. Where putrefactive or irregular fermentation of the gastric contents occurs, the stomach is abnormally dilated, and the contents are unduly detained; naturally the first step to be taken concerns the regulation of the diet: (1) The bulk of the food should be as small as possible, consistently with the nutritive requirements; nutritious, and not too liquid. Water should only be taken in small quantitiy at meal times, and the chief supply should be taken when digestion has well advanced; (2) the meals should be sufficiently far apart to prevent the supply of fresh food until the digestion of the previous meal has been completed; (3) all easily fermentable articles of food, sugars, fruits, wines, and beer should be avoided. If alcohol is permitted, pure whiskey or brandy properly diluted is least objectionable; bread should be moderately stale, and toasted. When digestion is very weak an exclusive milk diet may be desirable—three or four pints daily, in 8 or 10 divided doses, with the addition of a little salt, to be sipped slowly. Among anti-fermentative agents the most useful are bismuth sub-

nitrate (in frequent doses of not less than gr. x), and dilute hydrochloric acid in chloroform water (after eating). Salicylate of soda, creasote, carbolic acid, naphthalin, or iodoform are useful when well tolerated; but when the stomach is already the seat of disease, such preparations disagree and spoil the appetite; insoluble mercurials are excellent especially in the form of calomel, for a dose of calomel at the outset of microbic diarrhœa serves the double purpose of antisepsis and clearing out the bowel. A single moderate dose is generally better than repeated fractional doses, as some have recommended. In a lingering convalescence after a specific fever, with a persistence of irregular pyrexia, a brisk calomel purge is often a most valuable measure. The aromatic series of carbon compounds yields several useful intestinal antiseptics, of which carbolic acid, salol, naphthalin, and naphthol are the chief; unfortunately carbolic acid is toxic, and not more than 12 or 14 minims in twenty-four hours can be given without giving rise to trouble—the earliest signs of which are faintness and nervous depression, singing in the ears, slight deafness, formication, and clammy perspiration; while some darkening of the urine due to the presence of pyrocatechin is compatible with safety, or salol may be substituted for carbolic acid. This insoluble substance passes through the stomach unchanged, but decomposes in the bowel, yielding carbolic acid, though so slowly that toxic disturbance is rare. From 30 to 40 grains in the day have been given in divided doses with safety, and larger doses have been used. Iodoform owes its antiseptic power entirely to the fact that in the presence of organic matter it slowly decomposes and yields iodine, but apart from such decomposition it is a very feeble antiseptic. Then from its insolubility it escapes absorption in the stomach to a considerable extent, and travels on to the intestine yielding iodine on its way. It would be one of the most efficient gastro-intestinal antiseptics, but for its unpleasant smell, its liability to upset the stomach except in quite moderate doses (an average dose is gr. ij, in pill form every three or four hours), and lastly, unforeseen rapid decomposition occasionally attended with symptoms of acute iodism. Charcoal, although an antiseptic, has a wonderful power of absorbing toxic matters in the bowel; it has been strongly recommended in this connection by Bouchard, in a daily quantity of 100 grammes mixed with 1 gramme of iodoform, put up in cachets of convenient size, and distributed through the day; he claims to keep both the feces and urine practically non-toxic, particularly in typhoid fever.

Bismuth subnitrate chiefly depends upon its beneficial and protective action on the intestinal mucous membrane, so to be of any real service it should be given in large doses, toxic troubles being unknown if drug is pure. Among other adjuvants to intestinal antisepsis mention must be made of occasional purgation with unirritating aperients, of occasional cleansing of the colon by high enemata, and a carefully regulated diet.

Formerly the custom prevailed to wash out the pleura after tapping an empyena, but this is not only unnecessary, but attended with some dangers. Prof. Sanderson, in a lecture published a few years ago, said: "Air enclosed in a serous cavity is harmless; water is harmless; septic organisms are harmless, provided they are rapidly absorbed. The one thing fraught with danger is that liquid which is undergoing putrefaction should remain in a cavity, which though inside the body as regards temperature, is yet outside, in so far as it is beyond the reach of living tissue." If antiseptic irrigation is thought desirable, choice may be made from the following: warm saturated solution of boric acid, or tincture of iodine (1 in 1,000), bichloride of mercury (1 in 10,000), and good drainage is essential. Again many bronchial and pulmonary diseases are benefited by antisepsis of the air passages, for this purposes various methods are available directly by dry inhalations, of medicated sprays, insufflations, and intra-pulmonary injections; indirectly by the internal administration of substances in some degree eliminated by the lungs. For dry inhalations with an oro-nasal inhaler, such as Yeo's, equal parts of creasote, guaiacol, or carbolic acid and spirit of chloroform; tincture of iodine (1 part), with spirits of wine (3 parts); and eucalyptol (1 part), with spirit of chlroform (8 parts) have been recommended. For spray inhalations—equal parts of watery solution of mercuric biniodide (1 in 500), and iodide of potassium (1 in 500); carbolic acid (1 in 20 to 40); liquor iodi (1 in 100 cautiously increased may be used). The spray employed should be as fine as possible, and the admixture of 20 per cent. of glycerin with any of the above solutions considerably retards the condensation of the spray, and thus facilitates its transmission to the ultimate air-tubes. Insufflations are only applicable to the upper air passages, and are principally useful in the treatment of laryngeal tuberculosis; the best formula is iodoform and boracic acid (of each gr. j), with gr. one-sixth of morphine; previous cleansing of the laryngeal surface with an alkaline spray being desirable. Intra-pulmonary injections are so rarely employed in this country, and have yielded such poor results that they need not be considered. Some antiseptic effect upon the air passages may be indirectly obtained by the regular and persistent internal administration of guaiacol or creasote, which may be given best in small gelatin capsules, each containing m. ij. Both are unpleasant and liable to irritate the stomach and to destroy the appetite. A far more elegant preparation is the carbonate of guaiacol, an insoluble tasteless powder, of which gr. x—xv, may be given in milk three or four times daily after meals, without any unpleasant results. It is slowly decomposed in the bowel, yielding guaiacol.

Sohier Bryant (*Internat. Jour. Surg.*, Nov., '05) well observes that the gravity of the mastoid operation has ameliorated greatly of late years. So that early operation is rightly urged; it should be done before the patient's vitality has been undermined or before serious complications have arisen, such as are due to the proximity of the brain and of the lateral sinus. Bryant relates a case in which there were no symptoms about the ear except a purulent discharge. There was a high, irregular septic temperature. Operation showed a necrotic condition of the inner table and dura mater; the sinus was collapsed and thrombosed. Death resulted in five days from septicæmia. The indications of mastoid inflammation are set forth by Bryant: brain symptoms, external swelling, rise of temperature, sagging of the inner, superior posterior end of the osseous meatus, tenderness and pain; when this picture obtains the specialist should be consulted at once. Bryant's valuable paper emphasizes points made by Kerrison.

Surgical tuberculosis, no less than pulmonary tuberculosis, calls for the most careful general treatment, post-operative and otherwise.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, MARCH, 1906

Our ideas are our better selves —*A. B. Alcott.*

MEDICAL CONDITIONS ON THE ISTHMUS OF PANAMA.

THERE exists to-day in the canal zone on the Isthmus of Panama a magnificent opportunity to demonstrate the value of medical theories and conclusions. Here is a region of earth famed for its tropical diseases; here is a strip of land that another nation abandoned after suffering a death rate that staggered the world. Now comes the proposition for America to do what never has been done as yet: to complete a work the most colossal ever attempted in a land where every natural condition is antagonistic.

Ten years ago this work could scarcely have been done, but now it seems to work in providentially with the medical discoveries of the past few years. There has been much criticism and much discussion of the amount of work and its value, but the general consensus of opinion of the medical work in sanitary improvements has been very favorable. Recently Father Russell, a well-known priest who has been familiar with conditions on the Isthmus for twenty-five years, has given most favorable testimony of the great work done there by Dr. Gorgas and his associates. Gorgas, too, in a recent article in the *Journal of the American Medical Association*, has treated extensively of the problems of yellow fever and malaria. These two diseases were the principal ones that caused the mortality in the building of the Panama railroad and the attempted construction of the canal by de Lesseps. Gorgas has found the conditions similar to those at Havana, except that in Cuba there are two cool months in which mosquitoes do not breed extensively, while in Panama they breed extensively the year around. Again, at Panama there is a region of fifty miles to protect while in Havana the conditions were largely local.

It is impossible to learn what was the mortality during the French occupation. The work was done by seventeen different contractors, and they were disposed to discharge sick employees, to save the expense of caring for them. Hence no records were kept, except at the famous Ancor Hospital. Consequently, Gorgas believes that the French statistics do not represent more than fifty per cent. of the actual mortality. Thus it is known that of eighteen French engineers that came together to Panama, all died in a month save one. Now the mortality in the present two years is not more than ten per cent. Not one case of yellow fever has developed among the nurses and doctors who handle the yellow fever cases, yet not one is immune. Simply the wards are screened and equipped for keeping out mosquitoes. And in the midst of these grounds live the families of the officers. Ten years ago this would have been considered the height of recklessness, but to-day they are practically safe.

At first each new patient is kept in a wire cage large enough to cover his bed until the infectious period is past. Every fortnight the wards are fumigated to kill any stray mosquito. These mosquitoes are very domestic in character and rarely leave even the room in which they live. Sulphur is the best mosquitocide known, but it may be substituted by pyrethrum, Persian insect powder, if there are many many articles in the place which are injured by sulphur.

The stegomyia breeds principally in clean rain water, of which there is a large supply in Panama, for it is by cisterns and barrels the population obtains its water for domestic use. Hence every cistern and water container must be kept screened and this fact is determined by inspectors twice a week. Last March there were 4,000 breeding places reported; in October less than 400 were found. Ninety per cent. of mosquitoes in this region are stegomyia, while only five per cent. were of this class in Havana. The disease has practically been exterminated now and the governor of the zone has offered one hundred dollars for any fresh case. The natives are immune, so the disease can only occur in Americans or other foreigners.

The decrease has been gradual but regular. In June in the canal zone there were 67 cases, 40 in July, 27 in August, 7 in September, 3 in October, none in November or December. There is hopes that when the full life of a female stegomyia mosquito has passed since the last case, the disease will have been eliminated; this will require at the utmost one hundred and fifty days.

As to malaria the measures used are the same as at Havana and in the United States. Especially is dependence placed on superficial ditching, and the re-

sults are most satisfactory. In October, out of a force of 22,000 men, 21 per thousand were sick daily, as small a number as would occur in railroad work in temporate zones. Altogether the medical report of the canal work is eminently satisfactory.

A SCIENTIFIC EDITOR.

IT is our opinion that the relation which the ductless glands hold to therapeutics is a matter entitled to the most careful consideration. The department of therapeutics is, of course, the objective of all medical science. What does it profit, except in an academic way, to invent refinements of diagnosis, to disclose the pathology of tissues, to reveal the existence of pathogenic micro-organisms, if curative means and measures are not forthcoming as the result of all these discoveries. And confessedly our therapeutics are by far the weakest part of the whole structure of medical science which we and our forbears have been building throughout the centuries. Then let us be thankful for all the labors of our colleagues which tend to therapeutic betterment. There is a man named Sajous living in Philadelphia. Possibly the reader may have come upon his name. He has been a tremendous worker and, what is more, a great thinker. He has always been a thoroughly scientific physician, and he has always worked within ethical lines. He is one of those men who don't have to refer to a code of ethics in order to realize how it feels to be a gentleman. It pains us, however, to have to indicate two traits concerning him which are indicative of a depraved nature. He lives in Philadelphia and he is a medical editor. The former stigma was fastened upon him when we referred to his huge library labors: "Well, he lives in Philadelphia, and they have time to write—in Philadelphia." In pursuance of the second of these depravities (which we, in our own editorial capacity, humbly hope may be considered the lesser of the two) he has during fourteen years made an exhaustive study of the relation which the ductless glands bear to the economy. He has not, so far as we know, been a great worker in the laboratory. He has been in a position to sift the literature, and has reached what are, in our opinion, important conclusions. We may not agree with these; it is right that they should be most carefully weighed and valued by the profession. But the point we make is that the work of this man should be respected, and that gratitude rather than brickbats should be directed his way. Think of it: the conscientious labors of fourteen years, the first five of which, as he tells us, having been spent in fruitless gropings about. And in mitigation of the crime of which he is guilty—that of being an editor —we (being in the same boat with him) would observe that if his work and his conclusions bear the test of time, it will not by any means be the first example in history of a scientific and broad-minded thinker gathering together a mass of chaotic data and details and making of them a coherent and practicable science.

Sajous based his investigations upon the physiological fact that there are tissues in the body so minute that blood capillaries bearing the red blood corpuscles (the oxygen-laden corpuscles) cannot penetrate to them. In some way or another, then, these minute tissues must get their oxygen. How? Sajous evolved the theory that the ductless glands are esentially concerned in this process. The adrenals, for instance, produce a ferment which combines with the oxygen in the blood to form a substance which he terms adrenoxin, by means of which oxygen is conveyed to tissues which capillaries cannot enter. Upon some such basis as this the whole subject of adrenal therapy is based. We shall from time to time revert editorially to the work in this field, upon which many men are now occupied; and would here recommend an examination of Dr. Sajous' work, in two volumes, on "The Ductless Glands," or at least a perusal of his paper on this subject in *The Philadelphia Medical Journal* (March 7, 1903).

BLOOD EXAMINATIONS.

NO physician would to-day undertake to treat a disease of the genito-urinary system without an examination of the urine. Nor would he undertake to establish a diagnosis of tuberculosis without an examination of the sputum. In like manner he should not be content to treat a disease of the blood without investigating this fluid. More than this, a blood examination gives often valuable data by which one may at least be guided in the diagnosis of affections either obscure or difficult to recognize.

In the present status of blood examination the active physician must, if he have not been instructed during his work leading to the doctorate, either take a special course or enlist the services of an expert colleague; for "blood work" is at present in large part difficult in its technique. Nevertheless it is oftentimes absolutely essential that this fluid be examined. It is our purpose here but to indicate the importance of this work, referring the interested reader to the valuable text-books of Ewing ("Clinical Diagnosis"), Butler ("Diagnostics of Internal Medicine"), Mallory and Wright ("Pathological Technique"), and others.

An examination of the hæmoglobin, of the red blood cells (erethrocytes), and of the leucocytes may divulge much of diagnostic import. Concerning chlorosis and the various anæmias (secondary chlo-

rotic anæmia, primary and secondary pernicious leukemia, myelogenous leukemia, lymphatic leukemia), not only diagnostic information but also such as will greatly help one with regard to prognosis, is to be obtained. The various forms of malarial parasite (Tertian, Quartan, Æstivo-autumnal and Irregular) can be discovered under the microscope, to the great advantage of intelligent and efficient treatment. Leucocytosis is a phenomenon of infectious diseases representing, as Ewing well states, "the efforts of the blood and blood-producing organs to rid the system by means of leucocytes and their derivatives, of bacteria and toxins." During the course of such diseases the number of white cells is subject to marked variations, and leucocyte counts are often of decided significance. There may be physiological leucocytosis—of digestion, of pregnancy, of the newborn; and pathological forms—inflammatory, cachectic post-hemorrhagic and ante-mortem. Inflammatory leucocytosis occurs generally in infectious diseases where there is an exudative lesion; it is absent in most others. It is likely to be observed in pneumonia, diphtheria, erysipelas, scarlatina, rheumatism, *and all acute purulent processes.* Except where there are complications, it is usually absent in typhoid fever, miliary tuberculosis, malaria and measles. The examination of the blood for leucocytosis is often of decisive value in the diagnosis between: Tuberculous and concealed suppurative processes; tuberculous and suppurative meningitis; typhoid fever and appendicitis.

THE PURE FOOD BILL.

GENERALIZATIONS are very well in their way, but there's nothing like a concrete example for bringing things home. For instance, in discussing the Hepburn Pure Food Bill in Congress, Senator McCumber related that the Secretary of State of Kentucky happened in a village grocery store where he noticed a poor woman doing her family marketing. She bought lard, syrup, jelly, and sausages, and paying for the lot all that she had —$1.57—was told that she was still in debt 23 cents. The Secretary, being interested in the subject, duplicated these purchases, and had each article analyzed. The syrup was found to be 70 per cent. glucose; the jelly contained nearly everything but fruit juice, and was colored with coal-tar dye; the sausage contained an antiseptic; the lard consisted of beef stearin and cottonseed oil mixed. Had this poor woman gone into the market and bought these articles at their very highest retail prices they would not have cost her over 90 cents, and she would have gone away with 67 cents of her funds remaining instead of being in debt to the grocer; and this, as the Senator states, "independent of the fraud that was perpetrated upon her, independent of the coal-tar dyes which her children were compelled unconsciously to consume." And he continues: "I know our opponents say, 'You have got pure-food laws in about two-thirds of the States, and you have got commissioners to enforce them; why, then, do they not exterminate these evils?'" And in answer he takes the case just cited. The lard purchased by this poor, unsophisticated woman in a Kentucky village was manufactured in St. Louis, the jelly in Indiana, the syrup in Ohio, the sausage in Chicago—in every instance *not* in the States where the articles were consumed. How, then, are you going to reach the manufacturer, the primary culprit, with regard to these adulterations? Certainly not by leaving the matter in the hands of the State authorities; there must be a Federal law.

And will a Federal law be effective? Alas, we fear not, unless the American people are very much in earnest. For no law can be effective—not, at least, in these United States—which has not the spirit of the people behind it. Consider for a moment the Anti-trust Law which has been invoked against the nefarious beef-trust, a combination aggregating some half a billion of dollars, and which prepares its meat, in Chicago at least, in an intensely disgusting and unhygienic manner (see files of *Collier's Weekly*). The machinery if this mighty government of ours was set in motion against this beef combine, with what result? After many months of litigation, prolonged by the jugglery of counsel, who made it their business to defeat rather than uphold their country's laws, four men had to put up $25,000, and no one among them ever saw or will see a day in jail. "The mountain labored, and brought forth a mouse"; has this saying ever been more grotesquely exemplified than in the instance here cited? Yes, let us have a Pure Food Law. The principle of it is simple enough in all conscience and morality; it only requires a man who produces the necessaries of life to tell the truth to his customers. Can any requirement be more elementary than this? Yet such is the essentially law-despising status of our present-day American civilization that we venture to say such a law will remain a dead letter on our Federal statute books. They seem discouraging and pessimistic, these observations, yet who dare say they are not justified?

A poison farm, states the *National Hospital Record,* has been started by the American authorities on Potomac Flats, near Washington, with the idea of saving some ten millions of dollars that are now annually paid for imported drugs. Large plots have been laid out for the culture of the deadly nightshade, belladonna, foxglove and other potent plants.

DOCTORING IN MANY LANDS.

DR. LYMAN B. BROWN, now a retired Bostonian, has practiced and studied medicine in twelve parts of the world and has absorbed some valuable ideas from "medicine men" and others as to the treatment of the sick and injured. In an entertaining interview given to the *Chicago Tribune,* Dr. Brown has detailed his experiences, among which are such as might well give the graduated physician food for reflection. Beginning as a medical missionary in Turkey in 1866, he had to contend with many superstitions and peculiar habits and customs. In his first obstetrical case the mother insisted upon a local physician being called in consultation. The methods of the latter were unique. First he started a fire under a brazier, and when it was quite hot he dropped a clove into it, and the clove burst open. Thus it was determined that the "hazar" or evil eye had been averted, and that the mother would get well. In the meantime Dr. Brown continued his strenuous efforts at the bedside; there was a good recovery for mother and child, for which the doctor's Turkish colleague claimed the credit. All this seems imbecile enough; yet it has its identical counterpart in the "Christian Science births" nowadays, when the "healer" stands by the bedside while a physician is at work and by his "thought processes" the former insures a happy termination of the labor.

While in the Irak country the bubonic plague broke out. The local treatment for this disease was to burn brimstone and to apply the hot mess to the backs of the sufferers.

The Arabian doctors in the Sudan worked on the theory of opposites—their medicines being hot, cold, wet and dry. They give water for fevers and heat for colds—"and they get some good results." Dr. Brown considers them the best practitioners outside civilization; and well he might, for it was only several centuries ago that these Arabian physicians far excelled those in Christendom. The Apingi, in Central Africa, were fine fellows, and the doctor performed "some great amputations" among them. They have a leaf juice which is better than cocaine for deadening pain. In the case of a woman with lumbago the doctor was displaced by a native physician who first tied the patient on the ground and then marked off a large checkerboard on her back with a knife. Then he poured on copious portions of cayenne pepper and lime juice and followed this with vigorous massage. "She seemed glad when I applied cocoa oil—but she died." A sub-chief sick with neuralgia "superinduced by being kicked over an acre or two by an acquaintance," was treated by a native medicine man who dug up the bones of one of the patient's ancestors, burned them into chalk and then marked the body of the sick man with them. Then he lighted a bunch of grass and proceeded to scorch the patient's body, spitting upon it during the process. Treatment proving ineffective, witches were declared to be persecuting the patient, and three men were accused of employing the witches. To establish their innocence the three accused had to drink poison. They sweated and trembled in agony, but finally recovered and proved their innocence. "I will admit that I gave each of the three ipecac. The witch doctor then took the poison and I withheld the ipecac—but he got well anyhow, having taken poison before."

Scurvy was encountered among the Hereras. Every man in the tribe was a sufferer. The doctor cured them all with lemon juice and potatoes. The Bantus in Nyasaland believe that death results from three causes—the will of God, warfare or murder, and witchcraft. Those who died a natural death were supposed to be the victims of witchcraft. "I had most of the practice there, for while they were hunting witches I was giving pills, and I saved them and made reputations for a lot of rivals."

The Chins, a Burmese race, are "one of the finest people I ever met." They are akin to the Chinese. Among them the method of treating cholera is to go gunning in the bushes for evil spirits. In the Irak country Dr. Brown succeeded in stopping human sacrifices. Among the Koriaks, in Kamchatka, the native physician catches the patient by the heels and drags him about the house. If then he does not go to work and pretend he is cured, he is killed forthwith.

The doctor very sensibly concludes his observations with this sentiment: "Even so, these strange people whom I have tried to cure are but little worse than me. I found several valuable herb remedies among them, and even in their witch hunts they are but little more superstitious regarding sickness than the people of the United States. Whenever I see a man carrying a buckeye in his pocket to cure a local disease I think of the witch hunts—and I must say that the witch hunters usually gave strenuous doses of herbs just before starting out to hunt the witches." Are such procedures as these any more absurd than the rheumatism ring, the "oxydonor," Perkins' tractors, or any other of the innumerable devices that have been employed by civilized and supposedly intelligent people?

BRAIN WORK AND LONGEVITY.

SOME time ago, in a London court case, in which softening of the brain was alleged to have been the result of a railway accident, the fact that mental activity is decidedly conducive to longevity

was dwelt upon by several noted alienists. To keep the brain in good condition one should use it constantly to the safe limit of its capacity; just as constant use of the muscles and other tissues of the body is essential to physical well-being. A sound physiological principle is here enunciated. In the case above referred to, attention was called to the fact that in the English rural districts probably one-third of the agricultural laborers who survive the age of thirty or thirty-five die of paresis. "The utter stagnation of agricultural communities in England, and to some extent in other countries," states the *New York Times*, "may acount in some measure for the development of paresis in those past middle life and for insanity among women." It is fortunate that in American rural districts, at least, the deadly inanity to which many of the farmer folk in other generations have succumbed, seems now to have become obviated by the welcome establishment in every nook and corner of the land of the library, the ten cent magazine, the telephone and the trolley car. The brain needs blood to keep it in health; and thinking induces the free circulation of blood through the brain tissues. A normal brain should never be permitted to rest except during sleep. Dr. Duke advises that every one should have a hobby, to which he should devote what would otherwise be his leisure. And this not in a casual and dilettante way, but earnestly and with much interest. Professional men should study whist or chess problems, or should cultivate purely intellectual pursuits. Besides, one who consumes surplus tissue in intense mental application has none to waste in the formation of bad habits or the gratification of vices.

In one respect at least the man of intellectual capacity and pursuits is much better off than his brother who works with his hands. In the world of manual labor the pitiful dictum seems well established that at forty the laborer is "a dead one"; he must not hope for employment or a wage after that period. The intellectual man, however (despite the expression of a famous colleague), maintains the vigor of his mind unabated almost until he is ready to step into his grave; and if by this means he gains his livelihood, then need he not fear the lack of employment of emoluments even though his years be far advanced.

FOREST RESERVATION.

PHYSICIANS and all others interested in Sanitation and the public health, should take immediate action in behalf of Senator Gallinger's bill, to enable the government to purchase land in the White Mountains for a national forest reserve. As a health and pleasure resort, its qualities are unsurpassed, and it lies within easy reach of a vast population. The usefulness of its water supply from the viewpoint of our profession, would seem to be apparent. It not only furnishes water for drinking and bathing purposes for an enormous territory, but indirectly it supplies food and raiment for millions of people.

Since the country has been denuded of its forests, we are told that the springs are showing a lower pressure of water, especially during seasons of lighter rainfall, indicating a smaller reserve for emergency. Nothing is more important to the Sanitarian than pure water and plenty of it, and it is to him that the public looks for the preservation of the source, both in respect to quality and quantity. It is evident that our only hope for the protection needed, must come through the general government, which is fully able and, we believe, willing, to accept the trust, since there is every reason to believe that it would be a paying investment, even financially, as has been shown in other countries.

Every person interested in this beneficent undertaking should write at once to his senators and representatives in Congress, urging the matter upon their attention *now*, that the golden opportunity of saving what there is left of these beautiful and useful forests, may not be lost forever.

The dietetic treatment of nephritis is discussed in an important paper by Shattuck (*Jour. A. M. A.*, Jan. 6, '06), who sets forth the leading principles: Our control of nephritis must lie in diet and mode of life rather than in drugs. Such drugs as are useful are so because of their effect on the general organism, or on the heart, rather than on the kidneys directly. The general aim should be to spare the kidneys unnecessary work, not forgetting that the urinary is but one of the systems which comprise the body. In acute nephritis, as well as in acute exacerbations of the chronic forms, *Doctors, Diet and Quiet* should work together. Starvation for a few days, proportional to the intensity of the process and the strength of the patient, is the keynote of the dietetic management. In the chronic forms the aim (which can often be attained) should be to lengthen and lighten life. Especially in the contracted form of kidney disease much may be accomplished by our skill in adapting sound principles to the particular case and in securing the co-operation of the patient in carrying on the same, persistently, not spasmodically. Dietary restriction should be in the main quantitative rather than qualitative. Alcohol in moderation is not necessarily a poison, and may be an aid to digestion. The excess of proteid, not proteid in itself, is harmful to the chronically sick kidney. A varied diet is more likely than a monotonous one to promote the manufacture of good blood and thus to promote good nutrition of the body in general and of the myocardium in particular. The amount of albumin is in itself no guide as to the extent of dietary restrictions. (We have recently epitomized in an editorial article valuable opinions expressed at the Portland meeting of the A. M. A. upon the subject of Bright's Disease.)

BIBLIOGRAPHICAL

Food and Diet in Health and Disease. A Manual for Practitioners of Medicine, Students, Nurses and the Lay Reader. By Robert F. Williams, Professor of Principles and Practice of Medicine in the Medical College of Virginia, Richmond. In one handsome 12mo volume of 392 pages. Cloth, net, $2.00. Philadelphia and New York: Lea Brothers & Co., 1906.

That there exists to-day a need for a convenient, practical book on foods and how they should be used, one that will give the facts concisely and clearly and without technicalities, is patent to every physician and every nurse, as well as to every family.

For practical use such a work may well omit all reference to the tedious scientific investigations by which chemists and physiologists have evolved the present day knowledge of diet. Results, facts and clear directions are what is wanted, and this is exactly what Dr. Williams' excellent work gives, in language so simple that a schoolboy could read it intelligently.

Physicians will welcome this book as one which they can recommend to their patients as a guide to the prepartion and use of food in sickness and convalescence.

A Text-Book of Human Anatomy.—By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. New American from the Fifteenth English Edition. Thoroughly revised and largely rewritten by J. Chalmers Da Costa, M.D., Professor of Surgery in Jefferson Medical College, Philadelphia, with the collaboration of a corps of specially trained assistants. In one magnificent imperial octavo volume of 1,600 pages, with 1,132 illustrations in black and colors. Price, with illustrations in black and colors, cloth, $6.00, net; full leather, $7.00, net. Price, with illustrations in black, cloth, $5.50, net; full leather, $6.50, net. Philadelphia and New York: Lea Brothers & Co.

No text-book in our profession the world over is more familiarly known and respected, than Gray's Anatomy, and it is only necessary for us to announce a new edition and to point out such differences as may be found in comparison with the last.

In this revision the editor has endeavored to reflect the development of the subject since the last edition, and to accomplish this without sacrificing the practical and didactic characteristics for which the book has always been noted. In order that its pages might represent the world's best knowledge, the literature of the subject has been freely consulted, proper credits being given to the original source.

The new nomenclature has been introduced in parentheses, folowing the names still currently used in English-speaking countries. This system of coupling the current and the new names answers the needs of all students and will facilitate the adoption of the new nomenclature, which is to be desired on account of its simplicity and accuracy.

Although Gray has always been notable for the extent and elaborateness of its illustrations, this new edition considerably exceeds its predecessors both in the number of engravings and in the use of colors. The series now aggregate one thousand, of which about five hundred are new in this edition.

No physician who has made a success in practice, could be induced to part with his copy of "Gray," if he could not replace it; and it will be of interest to our readers to know, that without doubt, the present edition is superior to any of its predecessors.

International Clinics.—A Quarterly of Illustrated Clinical Lectures and especially prepared Original Articles. Edited by A. O. J. Kelly, A.M., M.D. Vol. IV. Fifteenth Series, 1906. Price, $2. Philadelphia and London: J. B. Lippincott Company.

Each succeeding number of this excellent publication goes a little beyond its predecessor in the quality of its contents. There are 312 pages of the choicest current literature in this number, all for the sum of two dollars. There are also many valuable illustrations.

We cannot attempt in our space to even give a list of the subjects treated, and we can only assure our readers that they can make no mistake in sending for it.

Diseases of Children.—A Text-book for the use of Students and Practitioners of Medicine. By C. Sigmund Raue, M.D., Clinical Professor of Pædiatrics at Hahnemann College, Philadelphia, Pa. Visiting physician to the children's wards and chief of the children's clinic, Hahnemann Hospital. Pædiatrist to the West Philadelphia Hospital. Second Edition. Revised and enlarged. 61 illustrations, 776 pages. Cloth, $5.00. Half morocco, $6.00. Philadelphia: Boericke & Tafel. 1906.

It is seven years since the publication of the first edition of this work, and the author says in his preface that "With riper years and larger experience he has learned the value of conservative methods, and has endeavored to replace the mere possibilities of therapeutics with clinical certainties."

The text has been entirely rewritten, and the reader will hardly recognize the book as one he has seen before.

The subjects are presented in a concise and clear form, in accordance with the author's experience.

The therapeutic portion is not confined to the use of small doses, but includes the whole range of dosage with the indications which should control the selection.

The book will be found useful, particularly to those who want to know about the smaller dosage.

Refraction. Including Muscle Imbalance and the Adjustment of Glasses. By Royal S. Copeland, A.M., M.D., Professor in the University of Michigan, and Adolph E. Ibershoff, M.D., Instructor in the University of Michigan. 144 pages. Cloth, $1.50, net. Postage, 9 cents. Philadelphia: Boericke & Tafel. 1906.

The authors have simplified the study of a difficult subject, and we have no hesitation in commending this little book to the student and the general practitioner.

A Manual of Bacteriology. By Herbert M. Williams, M.D., Professor of Pathology and Bacteriology, Medical Department University of Buffalo. Revised by B. Meade Bolton, M.D., Expert Bureau of Animal Industry, Washington, D. C. With 108 illustrations. Fourth Edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1905. Pp. 357. 12mo. Price, $1.75.

The present edition of this practical book shows

considerable revision to bring the subject to date, and much new matter has been added. The general characteristics have been preserved. The numerous editions which have followed each other rapidly show its popularity as a text-book. The text is clearly stated and well illustrated with cuts.

Urinary Analysis and Diagnosis by Microscopical and Chemical Examination. By Louis Heitzmann, M.D. Second revised and enlarged edition. With 131 illustrations, mostly original. New York: William Wood & Company, 1906. Pp. 319. Octavo.

In the revision of his work, the author has increased and improved that part which embraces chemical examination, and also has incorporated into the text the simpler methods and tests which he considers of value. Great stress has been laid upon the microscopical examination, and especially upon the microscopical diagnosis. The illustrations have been drawn by the author directly from specimens in his possession, and are increased in number. The subject has been simplified as much as possible, in the interest of the student. The book cannot be too highly commended.

The Surgical Treatment of Chronic Suppuration of the Middle Ear and Mastoid.—By Seymour Oppenheimer, M.D., Otologist and Laryngologist to Gouverneur Hospital; to Mount Sinai Hospital Dispensary; Fellow of the American Laryngological, Rhinological and Otological Society, etc. Illustrated by forty-six half-tone plates, containing sixty-four figures and twenty-seven key plates, all engraved from original drawings, prepared from special dissections, under the supervision of the author. Philadelphia: P. Blakiston's Son & Co., 1906. Price, $6.00.

In this treatise special attention has been given to the diagnosis of the various morbid alterations in chronic suppurative otitis media, as upon such diagnosis are the exigencies of surgical treatment based.

The author has also taken the lesser conditions found in the usual case of chronic aural suppuration, and from this as a basis gradually increased the scope of the pathological alterations found present, and the more extensive surgical treatment, until he reaches the complete mastoid operation with its various modifications, and follows this with a description of the plastic operations.

The subject is fully elaborated with great clearness and the illustrations are beautiful works of art. The work can be highly commended.

A Treatise on the Diseases of Infancy and Childhood.—For Students and Physicians. By Henry Koplik, M.D., Pediatrist to Mount Sinai Hospital, ex-President American Pediatric Society, etc., New York. New (second) Edition. Revised and enlarged in text and illustrations. Octavo, 868 pages, 184 engravings and 33 plates. Cloth, $5.00; leather, $6.00, net. Philadelphia and New York: Lea Brothers & Co., 1905.

In its general plan this popular book represents an endeavor to reflect the best pediatric knowledge of the world. The author has infused into this edition a somewhat larger proportion of his own experience, derived from the exclusive study of this subject for the past twenty years, and extending over an ambulatory and hospital practice covering 250,000 children. This personal element is most apparent in the chapter on Infant Feeding, a subject of paramount importance often of great difficulty, and one in which recent advances have been striking. The clinical character of the work has been preserved throughout, as the author has adhered to his purpose of furnishing a practical guide and text-book, serviceable alike for students and physicians. A number of new and characteristic engravings from original drawings have been added to the series in the first edition, and the text shows an increase of nearly 200 pages. The work will continue to receive a warm welcome.

Preventive Medicine.—Including a Disquisition on Therapeutic Philosophy. By William Colby Cooper, M.D. Pp. 147. 12mo. Price, $1.00 postpaid. Scudder Brothers Co., Cincinnati, O., or Dr. W. C. Cooper, Cleves, O.

This little volume contains a vast amount of good practical common sense, and is worthy the perusal of all thinking physicians.

Thornton's Pocket Medical Formulary (heretofore known as The Medical News Pocket Formulary) new (7) edition, revised to accord with the new U. S. Pharmacopœia, containing more than 2,000 prescriptions with indications for their use. In one leather bound volume. Price, $1.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1906.

The changes in the new Pharmacopœia are many and important. Some medicinal preparations are nearly doubled in strength and their doses proportionately reduced; others are much weakened and doses increased. Hence the new edition of Dr. Thornton's Formulary, revised not only to include all the newer drugs but also to accord with the new Pharmacopœia, appears most timely and its importance is obvious.

Thornton's Formulary, besides being accurate, trustworthy and up-to-date, affords other advantages which can be found in no other book of its nature.

Embalming in ancient Egypt was recently considered by Prof. Loret of Lyons (*Revue des Deux Mondes*), who related the discovery of some seventy yards of cloth about one foot wide which was used in wrapping a mummy. This cloth was impregnated with a resinous alkaline solution, to which the preservation of the tissues is no doubt due. Ten large jars have been found in a tomb near Thebes, which were full of a yellowish powder, made up of an aromatic resinous substance and a large proportion of sodium salts, with some sand and clay. The resinous substance is evidently an extract of various aromatics, in which myrrh predominates. Cloth dipped in water in which some of this powder was dissolved presents the same appearance and odor as that in which the mummies are wrapped.

Superstitions in regard to pregnancy are reported by *The Medical Age* from a collection published by a French physician. These odd beliefs are still prevalent among the poorer people in France. In some districts the peasant woman will invariably during parturition put on her husband's hat, declaring it will hasten labor; sometimes she will even don her husband's clothing. In the neighborhod of Toulouse are women who prefer dirty to clean bed linen to lie upon both during and after labor and to clean the parts after labor. It is claimed that by the use of dirty linen the danger of catching cold is obviated. Despite such objectionable methods, fine children are nevertheless born and bred.

CORRESPONDENCE

THE RECORDING OF SENSORY IMPRESSIONS FOR SCIENTIFIC PURPOSES.

To the Editor of THE MEDICAL TIMES:

The communication to a second party of sensory impressions has always been a practical need of humanity, and one that, until very recently, has been possible only by oral and graphic description and pictures. The inadequacy of such methods has always been felt and, indeed, accurate portrayal by pictures has never been possible excepting to a few highly talented individuals.

It is of some interest to note that it is by no means certain that the same sensory stimulus produces the same sensation in all individuals. By ordinary observation we know that a taste, an odor, a musical composition, a scene, which is highly agreeable to one person, may be intensely disagreeable to another. It is perfectly conceivable that the respective sensations are really different among different individuals. For instance, the mental picture of blue for one person may be the same as that of red for another. Analogously, sugar may taste to one person as salt does to another, and so on for the various senses. This hypothesis is, of course, susceptible neither of demonstration nor disproof, and the probability is that most persons really have the same sensations from the same stimuli. So, too, in matters of intellectual and moral sensibility, we occasionally have instances of perversion or actual inversion.

The efficacy of language for transferring conceptions—we can here scarcely use the term *sensation*—varies greatly according to mental development, both of the people as a whole who have perfected a given language, and of the individual using it. Probably no language has ever equalled English of modern times in fulness of vocabulary or analytic exactness, yet its deficiencies in certain respects are well known to linguists and persons familiar with different languages, frequently turn from one to another in order better to express themselves. English, indeed, has appropriated practically every Latin word, except some derivatives and some names of things not commonly talked about, as particular fish, plants, etc. Scientific English has also appropriated many Greek words for the formation of technical terms.

In Greek, the only language vying with English as to vocabulary, we find many words which can scarcely be translated into any other, and which are really expressions of gestures.

It is a peculiar fact that many theologic discussions depend upon uncertainties of expressions in the Hebrew and Greek originals of the Bible. Michael Angelo, indeed, represented Moses with horns from a too literal interpretation of the word which probably, in this case, referred to a halo. Unquestionably, the habitual use of gestures by certain peoples indicates that their language is not up to their standards of concepts. Prof. R. L. Garner, for example, mentions several African dialects in which one word represents the idea of a preposition, so that, without a gesture, the language would not distinguish between to and from. The Latin and Greek prepositions are notoriously less exact than the English, and the Baptist denomination exists partly because of the dispute as to whether a certain Greek preposition means to or into.

A very common error is to suppose that the languages of savages are very simple and of scant vocabulary. On the contrary, most of the aboriginal American dialects are exceedingly complex and have an enormous vocabulary in proportion to the number of ideas known in savage life. Even the African dialects have a distinction of three tenses, present, past, and future, and thus were up to the level of the original Germanic tongues and one better than Hebrew, which has only a past and future, which often uses the future where most other languages would use the past, and which represents the present—except in the imperative—by various expedients.

Most of our modern civilized languages are fairly adequate to transfer ideas of vision and hearing, but very inadequate to preserve or transfer ideas connected with taste, smell, etc. The comic song, comic mainly on account of its silliness, whose verses with reiterations as as follows:

"Found a peanut."
"What did it taste like?"
"Like a peanut," etc.,

is really no more ridiculous than the state of modern civilized speech regarding the chemic senses of taste and smell. It is simply impossible for us to state how a peanut does taste, excepting by saying it tastes like a peanut, and we are at a similar loss in regard to transferring any other conception of smell or taste, excepting that we have a very few words like sour, bitter, sweet, salt, etc., which are quite inadequate, and which, after all, are merely different forms of expressing that a substance tastes like certain common articles.

Even in cases in which it is possible to state that a percussion note has the tone of "A" in a given octave, that it is loud or soft, and that it is flat, dull, tympanitic, etc., or in which we make similar statements qualifying the color, illumination, etc., with regard to visual perceptions, it is quite impossible to transfer our impressions satisfactorily to another, especially to a student who has no great familiarity with other analogous impressions. For instance, the best physical diagnostician in the world cannot communicate his impression of a heart murmur to the next best, either in written language or by spoken language including an oral imitation of the sound. Neither could two such men who happened also to be clever artists, exchange ideas as to inspection of a patient, with perfect satisfaction. When it comes to transmitting ideas of rapidly changing states, as are commonly seen in diseases with motor phenomena, language, depiction and mimicry, are even greater failures.

The practical development of photography and, especially, of photographic reproduction, has been a wonderful advance for medical science. Sometimes the photograph has been used unnecessarily, so as to introduce the element of personal advertising or sensuality into what should have been an impersonal and purely scientific discussion, and we sometimes feel like deprecating the loss of skill in word-painting which the easy use of the photograph engenders. Yet, on the whole, the main fault with photography as applied to medicine, is that it fails to represent color, motion, etc., and that it may distort or fail to reproduce details.

Within the last few years the possibilities of photography have been greatly enhanced along two lines: the reproduction of colors and the successive rapid recording of scenes in such a way that they may be reconveyed to the eyes as a very accurate impression of motion. These two methods have not been joined, at least not on any satisfactory scale, and color photography has not yet been advanced to the standard of conceivably attainable accuracy. In both we also are handicapped by practical considerations of expense.

In November, 1905, the first practical demonstration, in this country, to an audience, of motion-photography, as applied to medical science, was made by Dr. Walter Greenough Chase, of Boston, using films charged at the Craig Epileptic Colony in the past summer. A considerable number of epileptics were assembled on the lawn, sometimes covered only with a blanket. At the commencement of a seizure the patient was carried to a spot already carefully focussed, and the recording biograph brought into action. In this way a considerable number of epileptic seizures were carefully recorded. Biograms of operations and of continuous nervous motor phenomena, such as chorea, athetosis, rhythmic motion, etc., have previously been made by Dr. Chase and by a few foreign investigators.

The expense of such illustrations, aside from instruments and manipulation, is high, about 25 cents per foot of film, and from 100 to 500 feet of film would be necessary for each case, a hundred feet of film representing approximately a minute of time.

As pointed out by Dr. Chase, the strictly scientific field of usefulness of such moving pictures is largely confined to motor, nervous manifestations. For didactic work, however, operations, vivisections, accouchements, and various other matters of interest medically, may be recorded so as to provide for convenient and highly impressive demonstrations to students.

Just as mathematicians derive real results from wholly imaginary and impossible concepts, such as the square root of — 1, infinitessimals and space of more than three dimesions, so the moving picture also allows us to derive useful information from impossibilities. For example, phenomena of motion too rapid or too slow for ordinary observation may be retarded or accelerated almost at will. The motion may be checked at any point for careful inspection and, indeed, may even be turned backward. Magnification or minification may, of course, be employed, and uninteresting phases of a scene may be cut out altogether. It is altogether probable that the biograph may be applied to microscopic objects, and thus we may hope, at no distant day, to see the life cycle of various germs magnified in size and increased in rapidity of development. Even with present attainments it is perfectly possible to study the heart's action in a greatly enlarged picture, with such manipulations of rate as may be introduced by turning the crank, and without any of the by-effects obtained by physiologic experiment to alter the rate of movement. In addition, the exact condition at any given moment in the cardiac cycle may be studied simply by stopping the crank. This is merely one illustration of the fact that the biograph has other than merely didactic uses.

For sound we already have the phonograph in a fairly perfect condition, the principal drawbacks being the addition of overtones objectionable from the esthetic standpoint, but readily recognizable by the ear as adventitious, and the impossibility of producing permanent records that will not deteriorate by use or by storing. The phonographic reproduction of sounds interesting medically has been employed only to a slight extent, partly on account of the fact that such sounds are, as a rule, too faint for recording in the ordinary apparatus, partly that the original source is usually easily obtainable or is subject to duplication, and that the present impossibility of indefinite preservation of records renders it scarcely worth while to attempt a phonographic reproduction, still we feel safe in prophesying that in the future the phonograph will have an accepted place in didactic and investigatory medical science.

In this connection we may call attention to the urgent need felt in various scientific and commercial circles for a telephote, that is, for an instrument which shall transmit stimuli of light along a flexible path to a reproducing apparatus, as the telephone does for sound. Whether the light vibrations are converted into electric force during the transmission or not, is immaterial, but such means of transmission naturally occurs to us by analogy.

But, with all such improvements, with known and conceivable instruments, we still have to deal only with sensations of light and sound. Our other senses probably can never attain a comparable degree of delicacy and complexity, yet it is obvious that something may be accomplished by a careful, analytic study of sensations of taste, smell, touch, temperature, as precursory to instrumental invention.

A. L. BENEDICT.

Beriberi is considered by H. Wright (*Am. Med.*, Dec. 16, '05), who makes a classification into acute pernicious; acute; subacute; and beriberi residual paralysis, or the disease as it appears after the specific organism and its toxin have been eliminated, and the engendered paralyses have failed to clear up. Acute pernicious beriberi is rapidly fatal, as the result of the severe impact of the beriberi virus on the cordiac nervous system. The acute form differs in its clinical aspects from the acute pernicious only in degrees. The gastroduodenal symptoms which usher in the disease are as marked and the later paralysis, sensory disturbances and œdema may be severe and widely distributed, but the terminations of the cardiac nervous system are never so deeply implicated. Death from cardiac failure is, therefore, rare in the early acute stage of the disease. The chief measure in treatment is rest—until the pains in the calves subside and the heart sounds approach the normal. Calomel in small doses at short intervals is indicated. In parturition or wound beriberi antiseptic lotions are called for. Strophanthus is indicated in threatened heart failure. Strychnine should not be used in the acute stage. Fluids must be restricted. Diureties are indicated for the œdema. In the stage of residual paralysis, gentle exercise, massage, electricity, and small doses of strychnine or arsenic are indicated.

RETROSPECTIVE THERAPEUTICS

MODERN TESTS IN DISEASES OF THE STOMACH.

While great advances have been made in the study of the diseases of the stomach, probably nowhere in medicine has such results been confined in actual practice to specialists. The average general practitioner knows but little about these advances and seems to care less. As pointed out some years ago by Boardman Reed, "the profession generally has long been inclined to overlook, or at least underestimate, the prevalence and importance of this class of affections."

Taking the question of motor insufficiency and atonic dilatation, we now know that the motor function of the stomach is far more important than the secretory. Such a statement twenty years ago would have been regarded as rank heresy. Schlatter demonstrated that the stomach is not indispensable by removing it entirely from a patient. We also know that the stomach, simply as a reservoir, is all sufficient if it possesses still the power of emptying itself at stated intervals. Nature will perform her work if the stomach does not hold back its contents; the intestinal and pancreatic juices, together with the bile, will perform the work surprisingly well. Ewald has stated this fact strikingly when he wrote: "Everything depends on the fact that gastric peristatsis is present in sufficient amount. If this is the case, then the severest organic affections of the stomach may run their course for a long time absolutely without symptoms. A cancer, for instance, of the greater curvature, may reach considerable size and the process be entirely latent."

It is a truism that stomachic conditions must always be treated by the general practitioner; he must be able to recognize these conditions. To test gastric motility it is necessary to uncover the abdomen of the patient and place him in a recumbent position. His legs should be flexed slightly. Then tap with the finger tips over the epigastric region; if a splashing sound is produced, it is indicative of marked muscular atony. It is well to remember that if there is extreme tension of the muscles of the abdomen, this splashing sound may not be heard, even though the stomach contains considerable fluid and its walls are flaccid. In such cases it is necessary to place your fingers against the lower segment of the stomach and command the patient to contract his diaphragm repeatedly; in such a procedure generally the splashing can be produced, or at least the presence of fluid detected. We know that in the normal stomach this splashing cannot be produced, even after copious drinks. Naturally, the louder the splash and the larger the area over which it can be detected, the greater the motor insufficiency.

Reed has devised a more accurate method for this same purpose. He determines the boundaries of the stomach by percussion when it is empty, and again after drinking one or two glasses of water, placing the patient in various positions, recumbent and standing. Having determined the size and position of this organ, determine its relative muscular power by the time required to empty itself after test meals. The disappearance of the splash will show when this occurs and the zone of dullness in the lower gastric region when the patient stands. These boundaries can be determined more easily by giving the patient a small teaspoonful of the bicarbonate of sodium dissolved in a glass of water, then giving 30 drops of dilute hydrochloric acid in a half glass of water. Ewald devised a salol test which is still used by many specialists; it is as follows: One gramme of salol is administered in two capsules of gelatine, thirty minutes after a small meal. The patient urinates before eating; he passes water every thirty minutes for two hours, and ordinarily salicyluric acid appears in the urine, forty to sixty minutes after the drug is taken. Ferric chloride solution gives a violet color to the urine if it contains salicyluric acid. Delay in this reaction shows motor insufficiency.

Winkler and Stein have devised a better method for determining gastric motility. Iodopin is used, a combination of iodine and oil which is unaffected by the gastric juice, but which is broken up into its component parts by the pencreatic juice and bile. Iodine under such circumstances has been found in the saliva in fifteen minutes, but it is delayed by gastric immobility. But as the test depends upon the activity of the pancreatic juice and the bile, it is not an absolute test of gastric motor function.

In the treatment of this condition authorities vary. Hershell is a great advocate of electricity; he applies the continuous current to the solar plexus and to the ganglia of the sympathetic and vagi in the neck in the following manner: The patient is placed upon his back on a couch and the negative electrode applied to the nape of the neck, the anode being placed on the epigastric region. Both electrodes are flat flannel-covered plates, having an area of 24 square inches, remaining stationary during the application. The current is then reversed and the electrodes are applied to the ganglia in the neck.

Hemmeter is highly enthusiastic over massage, gymnastic and other mechanical means. He uses massage of the stomach as follows:

(1) On an empty stomach before breakfast to strengthen the muscular powers of the stomach.

(2) Three or four hours after a meal, to assist in the expulsion of chyme, or to mechanically mix its contents.

According to the same author it may be usefully employed:

(1) In disturbance of the motor function depending on atony of the walls.

(2) In stenosis of moderate degree.

(3) In chronic gastritis with reduced secretion.

(4) In gastroptosis.

(5) And in certain cases of nervous inhibition of the peristaltic movements.

In the treatment of atony, Herschell has seen benefit from douching the stomach alternately with hot and cold water, and though this can be done with the ordinary stomach tube, he prefers Turck's double current tube for the purpose. He usually gives a *séance* of ten minutes' duration, changing the temperature of the water every sixty seconds.

Kussmaul, in 1868, was the first to carry out a practice of washing out the stomach; the cases most benefited are those in which the food is retained in the stomach too long. He divided these cases into six groups: (1) Where the muscular power of the stomach is insufficient to discharge its contents into the duodenum; (2) where there is spasm of the pylorus; (3) where there is abnormal dilatation of the stomach, whether depending on organic obstruction or any other cause; (4) some cases of cancerous disease; (5) those

rare cases in which the stomach shows a tendency to sacculation like ruminants; (6) obscure cases of obstinate vomiting and gastric pain. The best method of lavage is probably as follows: The necessary apparatus consists of an elastic covered silk stomach tube of half-inch external diameter, about thirty inches long. Drawn over the open end of this is a piece of ordinary red rubber tubing about forty inches long, attached to which is a vulcanite funnel. Silk tubes are better, because they are smoother and last longer. Use a vulcanite funnel and not a glass one, for glass may break when warm water is forced into it; use no glass anyway for connections. Have eight pints of warm water on hand, and, if possible, it should be soft, to prevent turbidity. Place the patient in an ordinary chair, with a suitable receptacle in front of him to hold the washings. Now lubricate the silk stomach tube, and for this purpose the patient's own saliva is the best lubricant of all. Pass the tube with a slight downward curve into the pharynx in the middle line. To prevent any spasm at this juncture, direct the patient to swallow, which will allow the tube to pass quickly down the æsophagus. Introduce now about a pint of warm water, which can be siphoned out by depressing the funnel below the level of the patient's abdomen. Introduce a fresh quantity of water, and if the patient stands it well this may be increased to five or six washings. When the last washings are quite clear, the stomach naturally has been freed from all foodstuffs.

Altfield's conclusions as to this procedure are the clearest. They are as follows:

(1) In the first place, vomiting is entirely checked; in some of the cases after one washing only, and in others after two or three repetitions.

We cannot be surprised at this result, for the tube does that which Nature has been striving for and succeeded in doing in part only. Nature succeeds in emptying the stomach of most of the material which is of no use to it, nay, positively harmful, only after the patient has been so poisoned by absorption of the noxious products of abnormal fermentation as to have been brought to the vomiting point. Even then she does not eject the fermenting mucoid matter adhering to the walls of the stomach. We could no doubt help toward emptying the stomach by administering an emetic, but the nausea and pain would be the same. The stomach tube combines, in such chronic cases, the advantages of spontaneous vomiting with those of emetics, and is attended by none of the disadvantages inherent in either.

(2) Again, by the use of the tubes as soon as the early symptoms show themselves, the patient is spared the twenty-four to forty-eight hours or more of gradually increasing debility, nausea, and in some cases very severe pain, which are the forerunners of an attack of acute vomiting.

(3) As a third result, following the cessation of vomiting, comes a marked decrease in pain. This pain is probably the result of several causes, which are each removed by lavage: (a) Probably the stomach by reflex action contracts strongly on its slimy, fermenting contents, thus producing distress; (b) there is probably a certain amount of inflammation of the mucous membrane, which will be reduced by removing the irritating stomach contents.

(4) Increase of appetite is an invariable result of lavage.

(5) Another remarkable advantage of lavage is the spontaneous action of the bowels which frequently follows, even in cases which have been the subjects of constant constipation.

(6) By lavage, as already indicated, we can completely empty the stomach of its contents, which it only incompletely does for itself by the painful and depressing act of vomiting.

(7) Finally, by empting the stomach we put it into the best condition for recovering from its dilatation; a dilatation which by the liability of the resulting voluminous walls and folds of the stomach to obstruct the pylorus tends always to increase.

Occasionally weak solutions of drugs are used in lavage; thus, Forlamini successfully treated chronic gastric catarrh by washing out the stomach with a weak solution of silver nitrate. His procedure was as follows: He introduced a two per cent. solution of bicarbonate of soda in sufficient quantity to come in contact with the entire coat of the stomach. Then he threw in a half litre, or about seventeen ounces, of a one to a thousand solution of silver nitrate; as soon as this became milky it was withdrawn, and a fresh solution introduced. Finally, the stomach was washed out with hot salt water. He believes this treatment gives tone to the stomach by stimulating the mucous membrane and diminishes the excretion of mucus.

Of course, there are some dangers in this procedure, even convulsions have been reported, as well as syncope, perforation, hemorrhage and sudden death. Fenwick, who is opposed to this procedure, says: "At the present day every imaginable symptom that can be in any way connected with the digestive organs is immediately considered as an indication for the use of lavage. We find that not only are chlorosis, atonic dyspepsia and the gastric crisis of ataxia subjected to this treatment, but even cases of reflex vomiting. But it is obvious in those cases where the treatment fails to do good, it is extremely likely to do harm, since, as Leube pointed out, it has the effect of removing those products of digestion whose manufacture has cost the stomach a considerable amount of labor. For my own part, I fail to understand how washing the organ in a case where the normal amount of secretion proves insufficient can possibly increase its digestive powers."

Turck has devised an instrument for strengthening atonic stomach, calling his method "pneumatic gymnastics." It consists of two parallel attached rubber tubes of unequal calibre, practically the same as those used by him in atomising the stomach. The smaller and shorter tube, when introduced, reaches just through the cardiac orifice, while the larger and longer reaches the greater curvature. The air tank or bulb is attached to one tube, and to the other a manometer for regulating the pressure. In connection with his method of pneumatic gymnastics, Turck also uses dry and moist heat (vapor) to stimulate the stomach. The forced air passes through a heated coil controlled by a thermometer, and connected with a double tube within the stomach.

Reed, who is an expert on this condition, uses diet, massage and electricity combined; he divides his cases into four classes, as follows: Cases treated by diet and exercise (special gymnastic for the trunk muscles), with, in some instances, medication; (2) those treated by the same methods, plus abdominal massage; (3) those treated by diet, exercise and intragastric fœcad-

ism; (4) those treated by the foregoing third combination, in addition to general massage, with sometimes very light effleurage of abdomen, lavage being added where there was much stagnation or chronic gastric catarrh. The diet was aimed to suit the indications present, especially the gastric secretion. Particular care must be taken to have patients with atonic stomachs avoid eating too heavily and to take not more than half a pint of fluid; between meals, drink sparingly of water, a glass at a time. Reed found intragastric electricity especially efficient in cases of hyperchlorydia, where abdominal massage is unpleasant. He uses faradic currents of high tension, using a new electrode modified from Zinliom's. The patient drinks a full goblet of water and then after the electrode is introduced lies down and remains recumbent; the application usually lasts five minutes, and is repeated on alternate days.

The Passing of the Sweat-shops.—We have of late heard and read much of shocking conditions among sweat-shop workers and the like, conditions very conducive to suffering, illness and premature death; and such statements as these have been too well substantiated to admit of doubt. Such narratives certainly distress the sympathetic; wherefore it is a pleasure to note greatly improved conditions, as indicated in a report published by the University of Missouri on "The Clothing Industry in New York," as set forth in the *New York Evening Post* of December 8, 1905. Professor Pope, of this institution, finds that the law of 1892 designed to abolish the tenement-house shop, is vigorously enforced. In company with a committee whose avowed object was to prove that the law was a failure, he made a thorough search of the worst quarters in New York City and only a few of such shops were unearthed. In 1899 the law licensing finishing work in tenement apartments was passed; the main processes of manufacture having already been transferred to inspected factories. Prof. Pope cannot corroborate the old impression that these tenement licenses were given out indiscriminately and rarely revoked; indeed, more than two thousand of these licenses were revoked in 1900; and every year since then the number of revocations has decreased because the violations of the law have become more infrequent.

With regard to hours of labor: From 1883 to 1904 the hours of labor of cutters have been reduced to from 52 to 48 a week. Coatmakers used to work from 60 to 90 hours a week; last year their average weekly stint was under 56 hours. Cloakmakers have reduced their working week from 84 to 59 hours, the pressers from 84 to 56, the pantsmakers from 84 and 108 to 56. We see here an average day's labor of 8 to 9 hours. Many a practicing physician, many a lawyer, many a city clergyman, many an employer of labor, indeed, would be glad to have his daily work restricted within such time limits.

The "crust of bread and rags" of the New York garment workers is obtained on an income that varies from $300 to $1000 a year. Cutters work on an average ten months out of twelve at the union scale of $21 a week. There's many a doctor and many a clergyman in the land would be glad if he could earn as much. Prof. Pope demonstrates indeed that the "sweat-shop worker" buys nearly as much food for his family as Atwater considers requisite where the head of the family is engaged in moderate muscular work. The difference for a whole year is computed to be only $5.61. It has been declared that the poor man, by having to buy very small quantities at retail, pays a great deal more than the rich man for the thing he needs. But Pope finds the evils of buying in small quantities to be not very great, many of the staples being retailed in quarter-pound packages at the same proportionate rate as is charged per pound. Butter and milk in adequate amount were found in the ordinary garment-worker's home, and "extras" were purchased from the delicatessen stores "in surprising quantities." The quality of food is good and wholesome; the Jews especially insist upon "kosher" meat, and the vegetables must be in good condition to please them. Pope notes that the garment-worker in New York has access to free hospitals and dispensaries (what physician will deny this, alas!), music in the parks, lectures, schools, libraries and museums. Theatres are opened to provide amusement at the lowest possible cost. "These things are taken nowadays as a matter of course as much as are public schools and paved streets." There is nowhere a better system of benefit insurance, strike and sick funds, than among the garment workers. The standard of living has been raised materially along with the decrease of hours, the development of machine work, and the substantial increase of wages. "The truth seems to be," states the *Post* (and for this we are grateful), "that a new definition of poverty is needed if it still insisted that the sweat-shop worker is its helpless victim."

Still, it is evident, that these improved conditions have not long been as they are, that they represent indeed the culmination of a very long and bitter fight —the fight which has been made in the main by labor and trades unions.

We declare we would be the last to deprecate the work of the earnest humanitarian, yet there are here and there statements which should certainly engage the reflection of the charitably minded. For instance: The Charity Organiation Society reports that during March and April of this year 28,000 tickets were distributed by the joint application bureau among men on the "bread lines," promising prompt and at least temporary work in the woodyard to all who would call. Of the total number stated only 305 came, of whom 94 per cent. were single, 14 widowers, 6 married, 6 per cent. deserting husbands; 67 per cent. were under forty years of age. Of the 188 men who were sent to the woodyard, 127 arrived there. The failure on the part of so many to use the bureau and that so many of these men "did not feel the need of earning food and lodging, but could get it more easily in another way, would go to show that the men of the bread lines are in no great need, or that the application bureau has not been able to reach them."

It should be a pleasure to the reader, as it is to us, in this holiday season, to receive some assurance that things among our less fortunate brethren (we were going to say our hard-working brethren, but we are pretty hard workers ourselves), are not quite utterly hopeless. Perhaps they are like the rumors of Mark Twain's death, which were circulated in the press some time ago. The venerable Mark, when he heard of these, sent word that the reports were "greatly exaggerated."

The condition of the blood vessels in cardiac disorders has received important editorial comment in *The Therapeutic Gazette* (Nov. 15, '05). The relative importance of vascular changes in connection with cardiac disease has much too often failed of recognition; physicians are too prone to examine the pulse with the purpose of discovering the condition of the heart, paying too little attention to tension and possible degree of fibrosis in the vessel wall. It is as essential for the maintenance of life that the arterial system shall perform its functions properly as it is that the heart should beat physiologically. Health and comfort can indeed be maintained with an irregular heart, provided the vascular system be normal in its condition. Pathological states of the blood vessels interfere not only directly with the blood circulation and the nutrition of the tissues, but also with the strength and activity of the heart muscle by the coincident changes which occur in the coronary arteries. In acute infectious diseases a condition of arterial relaxation may develop without the presence of any true cardiac disorder, the irregularity of the heart's action depending upon the fact that the normal *vis a fronte* no longer exists. When the vessels are relaxed the heart beats too fast because resistance is diminished, the interchange between the blood and the surrounding tissues is perverted, and the heart becomes tired in its endeavor to fill blood paths which will continually be capable of receiving more blood than it can provide. On the other hand in chronic cases where sclerotic or fibroid changes are taking place in the vessels, the tired heart needs, not stimulation, but relief from its burden, relief which can be obtained only by dilating the blood paths, and so diminishing the excessive *vis a fronte*. Physicians are thus understanding that digitalis must often be combined with nitroglycerin in these latter cases. In case of high arterial tension with secondary cardiac feebleness, the work of the latter may be increased by two diverse conditions: (*a*) There is a very distinct tendency to spasm of the vessel walls in association with a moderate amount of fibroid change; here relief can be produced by means of the nitrites. (*b*) The spasm is absent, but the fibroid thickening is so marked that the arterial channels are materially narrowed and the work of the heart greatly increased; here vascular relaxants manifestly can do little good, since an organic change has taken place which cannot be put aside by drugs inducing dilatation of the blood vessels under ordinary circumstances. No doubt every practitioner has noted how nitroglycerin has done good in one case and failed in another. In the latter class of cases just noted the iodides are likely to be more effective than the nitrites; while the iodides cannot remove fibroid tissue which is already well developed, they seem to do good by decreasing its growth and relieving some of the symptoms that have developed. Stowell (*Intercolonial Medical Journal of Australia*) emphasizes the various conditions of the arterial system here noted. He finds, moreover, that many cases of valvular heart disease, with or without heart failure, manifest a very distinct condition of high arterial tension; and he emphasizes Broadbent's statement that mitral stenosis (a lesion usually associated in the medical mind with a state of low arterial tension) is not infrequently characterized with high pressure. Whether such tension is due to stimulation of the vasomotor centre by some toxic material in the circulation, or simply to an increase in carbon doxide is a question; but the administration of oxygen will often very materially lower such arterial tension and thus give rest to the tired heart. Stowell also emphasizes the importance of equalizing the distribution of the circulation; and he makes the seemingly paradoxical statement that the treatment of a failing heart, in cases of valvular disease, whereby its strength is restored, not infrequently lowers rather than raises arterial tension. Stowell believes that digitalis is of little value where the myocardium is seriously affected. (Here he is in agreement with most authorities.) The use of hyperdermoclysis and intravenous injections of saline solutions do not, however, as he states, materially increase the work of the heart, because it is practically impossible to raise blood pressure by the mere mechanical presence of an increased quantity of fluid in the blood-vessels.

The Treatment of Pneumonia as pursued in four great hospitals in New York City—Bellevue, New York, Roosevelt, and Presbyterian—was recently outlined by H. P. Loomis before the Medical Association of the Greater City of New York. In such institutions as these the most advanced therapeutic suggestions are tried, weighed, discarded or adopted; and accurate records are kept by which reliable and impartial conclusions may be reached. There was much uniformity in the treatment of the disease in these four hospitals. Upon admission the patient was usually given calomel in small, repeated doses, followed by a saline the next morning. Local applications to the chest were usually restricted to cases where intense pain and distress were felt; none were made as a routine practice. An exclusive milk diet—plain or modified—was adopted during the height of the disease. A temperature of 104 and over was not regarded necessarily as an indication for special treatment unless nervous symptoms, marked restlessness or delirium accompanied the fever. At the Presbyterian, when the degree was above 104, cold packs were applied to the anterior portion of the chest; in the New York, alcohol sponging was resorted to, and, failing that, the cold pack; at Bellevue sponging with tepid water (80 to 85 degrees) was done; and at Roosevelt, alcoholic sponges or anterior packs. Only in the New York and the Presbyterian were tub baths given, and then only in cases of toxemic pyrexia or in alcoholic cases with nervous symptoms. Codeine was given to control cough, in doses from one-quarter to one grain every four hours; sometimes heroin (1-12 grain) and perhaps morphine. Trional, veronal and codeine were given for insomnia. Pulmonary œdema was treated by hypodermic injections of adrenalin; also by atropine, cupping and stimulation. The use of oxygen was restricted to cases of cyanosis and dyspepsia. "The oxygen tank seemed still to hold its place as the forerunner of the end." The three cordiac stimulants were alcohol, strychnia and digitalis; of these the first named was also the most used and the most relied upon. The indications for these stimulants naturally varied in different cases. Only in Roosevelt was the last used to any great extent. Nitroglycerine had but occasional use. At Roosevelt rectal saline injections were used, especially in alcoholics and when nutrition was failing. Eight ounces of a normal salt solution were introduced every four hours through a funnel attached to the end of a catheter; these injections were well retained and seemed to be of decided benefit. Dr.

Loomis paid a glowing and certainly well-deserved tribute to the interne staffs of these hospitals by whose industry and zeal these conclusions were made possible; and he emphasized three points: Morphine should be used more hypodermically in the invasion of pneumonia, which is oftentimes characterized by shock to the nervous system from a sudden and overwhelming toxemia, and by distressing pain, often amounting to the agony of a pleurisy. If any criticism could be offered of our treatment of pneumonia during the recent past, it must be upon the injudicious and often unwarranted use of alcohol. Lastly, Dr. Loomis believes that more patients are damaged than helped by the promiscuous drugging which is still too prevalent.

The blood in pulmonary tuberculosis has been examined by Ullom and Craig (*Am. Jour. Med. Sc.*, Sept., '05). These authors emphasize that their researches thus far, though very extensive, do not, however, warrant deductions which may be considered final. They find tentatively that: when there is no cavity formation a mild anæmia, with a decrease in exythrocytes and a relatively greater decrease in hæmoglobin, is constant; an increase of the exythrocytes, in cases without cavity formation, is of favorable prognostic significance; in advanced cases, a decrease of the leucocytes is of unfavorable import; the actual increase of lymphocytes *seems* to correspond to the increase of resistence on the part of the organism to the tuberculosis infection; in this latter regard the transitionals seem to follow the same rule as the lymphocytes; "at the beginning of the investigation the eosinophiles seemed to increase with the patient's improvement, but further study did not support this view."

Submucous Cautery.—Kopetzky, in an important communication (*The Laryngoscope*, Oct., '05), presents a submucous cautery which reduces the mass of redundant tissue while leaving the epithelium intact. The resulting band of connective tissue is placed so deep in the turbinate body that no interference with functionating power is incurred. The blade of the instrument is composed of an alloy of 30 per cent. platinum and irridium, a metallic mixture which easily and quickly becomes white hot upon the passage of the electric current. Yet this blade is sufficiently stable to retain its shape and to permit of its introduction into the tissues while cold. The cautery end is 1¼ in. long, ¼ in. broad, and as thin as it is possible to make it without sacrificing rigidity. The field of operation is cleaned of all secretions, and a 4 per cent. solut. cocaine or a 10 per cent. solut. Beta eucaine is applied over the hypertrophied tissue, followed by an application of 1 to 1.000 ardenalin solution. The blood vessels need not be wholly depleted; nor need the mucous membrane be completely anæsthetized. If the mucous membrane is tightly bound down upon the bone the introduction of the cautery knife will be difficult. Very little sensation, if any at all, is caused, since the end of the knife is sharp. It is introduced (cold) along the septal side of the turbinate backward, under the mucosa. In those cases in which the redundant tissue it irregular, of if the "etat mamelonne" exists, the cautery should be introduced only into the circumscribed hypertrophied portion; the septum and the remainder of the turbinate are protected from the action of the protruding blade, and by thin pieces of cardboard of a Bernay sponge. The instrument in position, the electric current is allowed to pass for a few seconds only; and the instrument is at once withdrawn before it is cool. A whitening streak will then be seen, slightly broader than the blade of the instrument, shining through the overlying strata of the mucosa. This disappears within a few hours. A light dressing of cotton, wet with a 1 per cent. silver solution, is then applied to the entire turbinote. The reaction is very slight. In none of Kopetzky's eleven cases was the reactionary coryza as marked as when the ordinary cautery is employed; and in no case was there any evidence of scarring or scabbing, except at the small point of introduction of the instrument. This method obviates any chance wounding of the septal mucous membrane and consequent synechia formation.

Colds are explained by H. Wakefield (*Med. Rec.*, Dec. 2, '05), on the assumption that they represent the results of disorders of metabolism, due to local disturbances of the circulation, following upon the unequal exposure of some part of the body. The degree of temperature is subordinate to the state of inequality produced, for a cold may be due to the extrinsic effect of either cold or heat, if sufficiently pronounced or abrupt to insure a localized action apart from the balance of the organism. Protoplasm is subject to the general laws that heat expands and cold contracts, or, in other words, that cold heightens and heat lowers the specific gravity of protoplasm. The molecular weight or density of the living protoplasm is increased by cold and decreased by heat. Cold produces high density, compactness and tonicity; heat induces low density, looseness of texture, flaccidity, expansion, dilitation, elongation and atony. Here is a direct responsive reaction of protoplasm, not a nervous effect; for it is as marked in nerveless unicellular and multicellular organisms as in those of the highest types of nervous organizations. The primary feature of a cold is a production of a condition of disequilibrium. The patient, during a period of normal heat balance, gets wet, cold feet; a state of contraction of the tissues of the lower extremities is attained; the blood is ejected from the peripheral vascular areas to the more roomy reservoirs of the splanchine veins, so that a pernicious splanchine venous stasis is produced, concurrent with a capillary and arterial blood deficiency in the extremities and with consequent suboxidation of the dependent tissues.

Fever During Menstruation as an Early Sign of Tuberculosis, is dwelt upon by Franck (*Berl. Klin Woch.*). He believes that a rise in temperature preceding or during menstruation is a strong presumptive sign of a morbid process somewhere in the body—usually tuberculosis. If the woman be anæmic and thin, with a tendency to sweat and to take cold readily, antituberculosis treatment should at once be inaugurated. Sabourin and Kraus have also recently pointed out the likelihood of tuberculosis in cases where there was fever during menstruation.

A suit against two French physicians is described (*Jour. A. M. A.*, Jan. 6, '06). Since 1899 Drs. Léné and Chicé, of Bordeaux, have been entangled in litigation. The former had ordered the removal to the quarantine station of a pregnant woman who had arrived from an infected port and presented symptoms of well-advanced yellow fever. Dr. Chiché had charge of the case; the patient died. Her father sued the two

physicians, alleging malpractice, neglect, etc. The body was exhumed upon his demand, when it was found that the seven-months' fœtus had been expelled by post-mortem gas formation. A sensational affair was made of this coffin birth, and for six years the two doctors have been summoned from court to court and subjected to endless annoyances, simply because the first had done his duty in protecting the public health and because the second had been unable to save a moribund pregnant woman. The suit against them has finally been dismissed.

The prophylaxis and treatment of pyo-salpinx are dwelt upon by West (*Annals of Gynec. and Ped.*, May, '05), who concludes: All cases of abortion should be operated upon. Gonorrhæal invasions should be fought until all traces have disappeared. The greatest possible aseptic precautions should be used within the uterus. All cases of pyo-salpinx should be operated upon. Some cases may be relieved by proper drainage. Radical operations should not be the rule in every case. The vaginal route is unsuitable for radical work. In freshly inspected cases West has had encouraging results by washing out the uterus through a cervical speculum with an alkaline solution, followed by 1-240 solution of silver nitrate. Pyo-salpinx, due to incomplete abortion, can be entirely prevented by operating upon every case of inevitable abortion under anæsthesia. A large abscess lying in the cul-de-sac should be treated by a vaginal incision with drainage tube left in situ for five weeks.

A test for pancreatic activity is provided by *The Practitioner* (July, 1905). If a drachm of salol be given in divided doses during 24 hours, carbolic acid will appear in the urine, for the reason that the salol is broken up by the alkaline pancreatic juice in the small intestine. But if no pancreatic juice is secreted the salol remains unchanged, and no carbolic acid can be detected in the urine. The most convenient tests for carbolic acid in the urine are: (1) Add to the urine a few drops of liquor ferri perchloridi; if the acid is present a violet color results. (2) By adding to the urine a few drops of bromine water a yellow crystalline precipitate (tribromo-phenol) is produced. (3) If a small quantity of bleaching powder and a little ammonia are added, the urine, on being heated, takes on a blue color. (4) The addition of Millon's reagent (acid nitrate of mercury) will produce a bright red color. One may thus diagnose obstruction to the outpouring of the pancreatic juice into the duodenum.

The advantages of the sanatorium treatment of tuberculosis are well pointed out by Pottenger (*Am. Med.*, Sept. 9, '05). Consumptives can be treated best in these institutions because: They are under the immediate care and constant guidance of medical men; they will thus be made to do the things which are necessary to attain a cure, and may be prevented from doing things which tend to lower vitality and retard progress. They are furnished with apartments suitably lighted and ventilated, and with food well prepared and adapted to their needs. All scientific measures which have proved of value in treatment are at hand. The tuberculosis individual is not receiving the best that can be had until he is given the benefit of all scientific aid, such as hydrotherapy, the chemic rays, culture products and direct medication of the upper air tract, in addition to rest, good food, fresh air and sunshine.

Amaurosis Following Paraffin Injection for Saddle Nose.—Many cases found in the literature are akin to the following, cited by Muntz (*Centralb. f. Chir., No.* 2, '05): A woman, 25 years of age, had a saddle deformity of the nose, due to syphilis. One-third gramme of paraffin at 43° C. was injected to the right and left side, from the center of the deformity. The left eye became blind in consequence. It would seem that no failure in technique was made. The blindness was due to thrombosis from the external nasal veins, to the inferior ophthalmic vein and thence to the central vein of the retina. Paraffin thromboses have become so frequent after this method of treatment that it must henceforth, we believe, be avoided by the conservative surgeon.

Diabetic coma in children is considered by Dupuy (*La. Clin. Infant*, June, '05). Prodromal symptoms are very inconstant. The odor of acetone was found in but three of seventeen cases. Ebstein's cylinders were not noticed; diminution in the quality of urine was not pathagnomonic. As to the period of invasion, the child often complains of acute epigastric pain, the abdomen is distended, constipation is almost constant, and there is nausea and vomiting of watery fluid. When coma supervenes the general state is already very bad, with great wasting and enfeeblement; the respiration is frequent (the inspiration being full and deep, the chest moving as a whole, remaining thus a few seconds and then falling with an effort in a short expiration). The heart is usually normal throughout. In coma the beats are regular, but progressively feeble (120 to 130 or even 150 to the minute). The polyuria which exists at the beginning becomes markedly diminished; the urine is clear, limpid and acid, containing sugar in abundance, but less than before the coma, during which it diminishes progressively until death. The sugar sometimes disappears completely. Albumin may be found, but in small quantities, and quite late. The smell of acetone is less marked in the urine than in the breath. There is no marked aberration in the nervous system; patellar reflex is often abolished; the lassitude and apathy of the prodromal period becomes accentuated; somnolence is more marked. When the coma is confirmed the pupils are fixed, equal, dilated, or contracted, normal reflexes are abolished; extremities are blue, limbs flaccid, tongue dry, dyspœa intense, respiration 32-48 per minute, pulse rapid and filiform. Death takes place without convulsions.

Enuresis in Children. Barnes, (*Am. Med.*, June 24, '05) discusses the etiology of this affection, which is so often the despair of the family physician. There may be organic causes, such as malformation; inflammation; nervous abnormality; disturbed nutrition. Or the causes may be functional, such as lack of education and training; an undeveloped mental state; autointoxication; a neurasis; hyperemia; local reflex irritation; remote inflex irritation. One must remove the cause wherever possible. There must be careful feeding with tonic medication, regulated exercise, and, where possible, an appeal to the child's sense of shame. (Of course where there is irritability or hyperemia, an anodyne rather than a tonic plan of treatment would be indicated.)

MISCELLANY

Many cases of deafness recently under treatment by London physicians have been attributed by them to the grippe.

Waste Paper.—A petition seven miles long is to be presented to the British Parliament against the vivisection of dogs.

A disciple of Miss Anne S. Hall has been found in Dr. Charles Eliot Norton, of Cambridge, the translator of Dante's "Divine Comedy." Miss Hall, as we have already noted editorially, has instituted a campaign for the killing off of the hopelessly diseased and victims of accidents.

Life is not long enough, declares an iconoclastic exchange, to afford time, unless a doctor has no professional work, to read the long lectures and papers published in *The British Medical Journal* and *The Lancet*. We grieve to add that this exchange, the name of which we charitably suppress, is published in London.

The League Against Seasickness, will, it is stated, charter a steamship while the medical congress is held in the coming April; during a trip from Hamburg to Portugal, touching on the way at Antwerp, Dover, Cherbourg and Panillac, the many methods which have been advocated for the sure of seasickness will be tested.

Disease Caused by Stored Game.—The practice of game dealers of storing game and poultry without drawing, dressing or otherwise preparing it, has prompted the New York and New England Association of Railway Surgeons to adopt resolutions affirming that herein is to be found the cause of most of the cases of oxogenous toxicosis or toxinfection.

The oldest artificial leg in existence is now in the museum of the Royal College of Surgeons of England. It was found in a tomb at Capua. Made of pieces of bronze, fastened by bronze nails to a wooden core, it accurately represents the form of a leg. Two iron bars, having holes at their free ends, are attached to the upper extremity of the bronze; a quadrilateral piece of iron, found near the position of the foot, is thought to have given strength to it. There is no trace of the foot; and the wooden core has gradually crumbled away.

German Hospital Cars, especially fitted up from plans supplied by sanitary authorities, have been placed by the Prussian ministry at every important railway centre throughout the kingdom. Spring beds and every medical device for the alleviation of suffering during transit have been utilized, states the *Medical Record*. There are gas stoves for cooking, rooms for attendants and ingenious devices for muffling the sound caused by the motion of the train. These cars are intended primarily for use in case of an accident; but they may also be engaged by invalids needing transportation.

The robbery of a trained nurse was recently attempted by two men in a part of New York City where there are "perhaps more hospitals than there are policemen," states the *Evening Post*. The nurse, Mrs. Burt, seized one of her assailants by the throat and held on, her cries for help meanwhile summoning a policeman, who made him a prisoner. Another nurse but a short time before went through a similar experience. In each instance the woman was either going to or returning from her professional work. A man must be truly depraved who would attack a nurse going about her merciful business.

Medical certificates for chauffeurs are proposed as a necessary preliminary to the granting of a certificate for running automobiles in France. It is believed that only men of absolutely sound health should be permitted to run motor cars. Many chauffeurs have been found to be in poor physical condition, either from overwork or various bodily infirmities; in one instance an epileptic was found in control. "With present high-speed touring cars and the necessity for keeping the most careful lookout and controlling the machine absolutely, the problem becomes closely akin to the running of a locomotive, and the move of the French authorities would seem to be a move in the right direction," states *Harper's Weekly*.

Magnesium sulphate anæsthesia was recently advocated by Dr. S. J. Meltzer in an able paper read before the New York Academy of Medicine. This method is of special interest, following as it does upon the advocacy of the use of scopolamine to the same end. As every physician has had frequent occasion to realize, no method of causive insensibility to pain is free from objection, though now we have a number of them—ether, chloroform, nitrous oxide, lumbar puncture, scopolamine and magnesium sulphate. Concerning the last of these Dr. Meltzer himself bids us be cautious. It tends to check respiration; wherefore apparatus for mechanically exciting the action of the lungs should be provided in advance. The salt is used subcutaneously.

Choristers and Doctors.—The recent strike of choristers who sang in opera in New York City moves *Harper's Weekly* to calculate that "the average earnings of qualified and certified doctors of medicine in the United States do not exceed $600 a year," which occasions the *Post's* observation that "the average American physician earns only $300 more in a year than Mr. Conried's chorus singers do in five months; and he has a much more expensive education." On the whole, if one is undecided between these two careers, we should advise him to take up singing in the chorus. There is probably much more fun in it; and, besides, one can at any time strike, either as an individual or in a union. On the other hand, who has ever heard of a doctor, or any body of doctors, striking, no matter how onerous the conditions they may be up against?

The port of New York is well guarded, if we are to judge from Dr. Doty's last report. Last year was the busiest in the quarantine station, nearly a million persons having been examined. In addition to the general work, special examinations and disinfections were made on the boats coming from New Orleans, Galveston, Colon, Havana and other ports where yellow fever was prevalent. As it is possible for typhus fever and cholera to be brought into this port in a mild or ambulant form, Dr. Doty advised the European steamship companies (who acted promptly upon the suggestion) that all Russian aliens be held for five days under medical supervision, at the port of sailing, to give the disease a chance to show itself. There were five cases of yellow fever brought to the port of New York; all of these were detected by the thermometer. This port received, in 1905, four-fifths of all immigrants to the United States and one-half of all the vessels sailing to this country.

NUTRITION OR FATE?

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

I WONDER why consumption can't be cured like other diseases?" This question was seriously asked by a young lady of delicate type and nervous temperament—one who for months has had an obtrusive and suggestive cough—the other day while gazing at the likeness of a novelist and playwright of conspicuous ability, the late Robert Neilson Stephens, who about a month ago died of consumption in Bournemouth, England. For ten years he had made a valiant fight for life by redoubled literary work in resistance to physical capitulation to premature death. Meanwhile he had sought different climates; the conservative value of clean air and systematic ventilation had been early impressed on his attention; he had availed himself of a regulation course of treatment at the Linford Sanatorium for the treatment of consumption near Ringwood Forest, England, that he might learn, as he expressed it in a letter to the present writer, "learn how to live during the long process of curing myself"; he had found at Bournemouth a location where he could more comfortably breathe the air whereby he was enabled to pursue the mental advantages of literary work as relief from proneness to dejection; thus for several years after he could not ascend the stairs to have his room on second floors he outflanked death by the defences of his resisting will and intellectual occupation, by full feeding and flush nutrition, until a finishing grippe ended the contest. He had long before discerned that he could not exist if he inhaled the rasping smothering gases, the smoke and dust of our bustling American cities. Because of such conditions he was driven from New York City one winter to the soft air of the Bermudas pending the reading of proofs of one of his books. While many another would have succumbed in one year, this young man of iron resolve, after the severe initial stage or break, by persistently holding to the sanitary helm of daily and nightly ventilation, the importance of which had been pressed upon his intelligent observance, succeeded in making name and fame for himself among a hundred thousand readers in the interval of suffering before silenced by the relentless hand of doom.

In the broadening view of the sensible movement to reconstruct our tuberculosis theology, by allowing a beneficent Creator a free grace chance to help consumptives by natural laws of life—in lieu of conventionalized serum heterodoxy—the lesson of the distinguished example I here refer to is of deep practical importance to all doctors of medicine;—especially to those who have inadvertently joined faith with the rubric of indefinite drugs, indigestible oils, closely warmed houses, and the flummery of tuberculin inoculations which hasten the fatal climax that so appallingly swells the records of the great white plague.

Young Stephens had belonged to my clientele in his earlier life. His father, Professor Stephens, had died of consumption in his country town in Pennsylvania. His brilliant mother had died of malignant cancer of the breast in Philadelphia—after a futile operation by the eminent late Professor Agnew. Nearly ten years prior to his death, young Stephens filled an important position that required much night travel from city to city in dramatic interests, compelling him to the makeshift of stuffy sleeping cars behind gassing locomotives which wore severely on his by no means rugged vitality, and culminated in a severe influenza. He was then finishing his first drama, "An Enemy to the King," so ably presented to admiring throngs by actor Sothern the ensuing season. On visiting my client, I urgently explained that if he would protect his shaken lungs from permanent disease he would need resign his exhausting steam car travel contract, and seek the relief of more open air occupation. To recover from that attack of influenza he sought the sea air of Atlantic City as early as practicable. Once better, the remunerative venture was continued until an attack of acute pneumonia nearly cost his life. Impaired lung texture ensued, and the seal of consumption began to stamp its signals of disintegration. He relinquished travel except in pursuit of sanitary breathing-air. Many a limited area evidently healed over with fibrous tissue. His devoted wife was his admirable nurse and care-taker—his unfaltering cheer-maker and inspiration. Thus with courage unimpaired, between the initial scourge and the final collapse, fighting for continuance of productive life day by day for nearly nine years, this invalid wrote seven dramas besides a series of nine popular novels published by L. C. Page & Co., of Boston.

As medical men we are doubtless thankful for professional encouragement to be drawn from the lesson of one who so long surmounted the defalcations of tuberculous disease by the sunshine of a cheery helpmeet, by the beneficent ministry of daily and nightly sanitary breathing-air systematically maintained, and by the well-supported nutrition most faithfully promoted till he had successfully performed so great an amount of work for his postmortem inheritance. Let us pursue the paramount study. Oxygenation is the stimulus and nutrition is the leverage of life. Without either there is no life. The quality of the oxygenation of the blood corpuscles and tissues determines the quality of the nutrition and vitality or health of every individual in the world. The moment that we touch the quality of the blood we press the button on the quality of the nutrition of the body, all its cells and tissues, the texture of its organs, the integrity and the perfections—or the failures—of its functions, the proneness to or the exemptions from disabling disease. The unity of disease consists in the disability of vital functions, let the variations of physical expression be what they may. All disease is a deflection from the normal. The blood is the feeder and builder of every cell in the body. If the blood lack the qualities that sustain healthful physical integrity, disordered functions follow as naturally as shade is the reverse of light. Hence the recuperative agency of sanitary oxygenation of the blood gauges with nature's exactness the degree or quality of recuperative agency of nutrition.

No man cures disease, or heals wounds and sores, except through the process of nutrition. Nutrition is the consummation of life itself. The question reverts:—whatever impairs normal nutrition, plants a fundamental impediment to health—lays the foundation for disease in some organ or function. Since the body is material, normal nutrition is won by normal oxygenation only, and thereby the body is regenerated from its diseases. In order to heal, there must be a sufficient supply of healing material. Poor, anæmic, perverted quality of circulating blood means

poor, anæmic, perverted quality of nutrition, of construction, and of function. There can be little mystery about causes of health and causes of most disease—even of consumption. The ground-floor problem is as simple—the philosophy as logical—as the mathematical principles of addition and subtraction. Excluding accidents—maintaining the physiological normal, restoring the disordered conditions back to the physiological normal is our precise task. The assistance of repairative nature is the master touch of all our successes. Unwise dosing with drugs that encumber and handicap nature is thrusting into the striving system the adverse weapons of hindrance and defeat. Medicines must be floated by the blood current—must be appropriated mainly by the reconstructive mechanism of nutrition. Medicines are comparatively like crutches to assist the patient to hobble across the line of disability caused by sick blood and perverted nutrition.

Every tumor, every cancer, every neurasthenia, every tuberculosis proclaim the burrow and graft of perverted nutrition. Every asthma, croup, diphtheria evince the grasp of poisoned deoxidized breathing-air with the resulting perverted nutrition whereby the penalty in suffering must bear its cross. What we call diphtheria amounts to an ordinary brush of sore throat when the blood and nutrition are in sound or healthful condition. But the local scathing by poisonous elements in the breathing-air deepens into real seriousness when the blood and nutrition are depraved together. Malignant diphtheria means rot in the blood and tissues, else the healing would be relatively spontaneous and sure. The innocent bacillus found there?—blebbed into from and vision with the natural fermentation of physical decomposition?—how soon it vanishes from transient demonstration with a bit of healing! It is impossible for any bacillus to inaugurate disease either in the throat or the lungs if the blood be preserved in normal condition by healthful oxygenation. It is not the stunt of inhaling stifling fumigations that arrests either diphtheria or consumption—it is improved nutrition that regenerates the body from its diseases. Considering the natural simplicity of the problem, a dozen or a score of well chosen therapeutic remedials besides nourishments will carry a practitioner safely through a year's practice—allowing for a few special exceptions—while the inventive manufacturers are multiplying and flooding their markets by hundreds of confusing variations in drugs for the rounds of professional experiments and sales. I pity the doctors who pliantly skip from a really good thing to the next and the next pharmaceutical experiment—come day, go day—which way the bug hops!

We dare not—at least I do not—waver from the radical fact that perverted or disordered nutrition constitutes the warp and the woof of most disease. Breathing-air circumstance is the weaver. Omitting small pox and a few contagion addenda, and also the accident of scalds and burns, even the condition for cure in these lesions depend on the repairative qualities of the blood and nutrition. And since consumption, which is not contagious, is caused by vice in the breathing-air habitually inhaled and by the misfortune of mal-nutrition, a reformation in these radical conditions afford the only promise of relief and cure when cure is yet possible. The strenuous fad of outdoor existence, eat and sleep, summer and winter, will presently be so overdone that it will lose prestige. Too many of those who are reported markedly benefited by the tent regime early relapse after returning to their accustomed zones of life—die and are buried just the same. It's queer—how over-strenuous doctors become when they get started that way? All in all the human family are a class of civilized humans—and not Norwegian bears! However, by the habit of years, the first thing that appeals to my attention on entering a house where illness has developed, is to glance after the manner of heating and ventilating; to see if there are any gas stoves or coal oil stoves to perjure the house air; to discover if stealthy fuel gases from heaters or stoves invade the rooms; to observe whether or not the bed or the crib is too close by the drift of the hot-air register; to see if the rooms are closed and even the shades drawn against the relief of refreshing outdoor air;—because I am alertly aware that there always exists a local preparatory condition from which has been more or less directly developed the affliction to which I have been called. At the outset it is my resistless desire to arrest the injurious influence, and to marshal every natural advantage to my assistance, rather than depend on the less certain virtues of my drugs unaided. In eight cases out of ten my treatment begins by opening a window to improve the repressed ventilation and the chances of my patient. For upon the quality of the oxygenation depends the quality of the patient's blood—for the blood of the body is the life of the body—that determines the status of constitution that is yielding to the grievance of abnormal conditions. I must talk from the heart out. I could win no rest of spirit if I went away from my patient and left behind me masked dangers that could muffle the sick one with stealthy and vital depressants during the interval of my absence.

The writer is not presenting the subject thus earnestly as a formal didactic affirmation. He realizes that he may be speaking parting messages to the world. There are great but overlooked truths in the care of the sick that eminently merit the "verily, verily," because they are the roots from which may be grown the daily salvation of the invalid. It has become the vogue to feed the consumptive to the limit of capacity. But the prestige of normal nutrition resides in the normal oxidation of nutritives while in the circulation, also in their subsequent elimination to make way for fresh supply. Quality and completeness gauge the grade of repair and integrity of functions. Foods cannot be properly utilized unless normally elaborated by the chemistry of nature. The old needs to be resolved and dispersed to make way for the new, else nutrition and foods depreciate together.

It has been authoritatively stated that the adult person annually requires an average of about six hundred and fifty pounds of semi-solid and an equal quantity of fluid matter, and seven hundred pounds of oxygen to maintain an organism in a normal state. But this thirteen hundred pounds of gross material would seriously fail in the needful functions of normal nutrition, were it not for the transforming virtues of the seven hundred pounds of oxygen needed to render oxygenation sufficient to prevent deficient and perverted nutrition. Since oxygen is the vital trans-

former of the agents of nutrition, and a normal ratio of oxygen is furnished by pure air only or its approximate, it must be clearly recognized that if breathing-air is deficient in oxygen and is impregnated with poisonous gases of any kind, there results defective and perverted or mal-nutrition—always an inflowing tide to some form of disease. All the "starvation neuroses" mean defective nutrition through lack of oxygenation of the blood and normal denutrition of the body because of pest-haunted breathing-air. Under the search-light of daily and nightly environment we may soon discern that not only the neuroses of children and adults, but many other common afflictions, including throat disorders, grippes, pneumonias and consumption are the physical results of inhaling poisonous elements prevailing in the local breathing-air of susceptible individuals by careless habits of managing the combustion of our ordinary fuels and illuminants,—these aggravated by lack of ventilation, by close heat, house dust, smoke, sewerage and re-breathed human decay.

There is recognized often annoying debility and irritability of the system. We are wont to say that he or she is out of temper or not feeling well. But there is poisonous dead waste present in the system—accentuated by lack of normal nutrition. The feeding end of the dilemma is embarrassed by lack of the oxygenation and adjusting relations of foods. The organism is hampered with toxic debris. If we send our child out to regular exercise in the fresh air, how soon has its oxygen promoted enjoyable appetite, restored nutritive functions and revived spirits! But what of our house hermits?—our recluse shut-ins?—our devotees to shops or offices?—to unfriendly gas stoves and home cares?—to needy needles and sewing machine toils?—to the exhausting night lamp tax or chest-flattening desk?—to sweat shop tasks?—to stuffy railroad jaunts?—to foundry and factory smudge?—to overcrowded sleeping rooms where purifying and vivifying ozone must forego its beneficent ministry?—lungs! lungs!—all the wear on the lungs!—what chance has repressed mortal nature to normal elimination of decaysome and irritating waste of wornout material that corrupts the main channels to decent health? The abused lungs, consigned to the double task of taking into their cells degenerate air with every breath, and throwing off the corpse of dead carbonaceous matter from the venous blood with every breath, who wonders at their breakdown from the initial bronchial cough to the finale of fatal consumption? Let us study out the problem:—with the rasp and grind of continuous unhealthy environment, can sensitive lungs be expected to maintain a sufficiently defensive nutrition of their own to withstand a wear more scathing and degenerative than cast iron or steel texture could endure? Will not lung surface cells and texture yield to death under such common wear and surrender to the characteristic disintegrations of tuberculosis? Or have we need of first ordering into action a supposed brigand bacillus to ravish the field of aeration—to degrade the service of nutrition and denutrition—to pillage and deplete the store of human vitality? Fudge! The bacillus is but the afterclap adjunct in the situation—in itself of no account.

This paper deals with the start of consumption. Heredity is not to blame. Heredity is outrun in the first two years of the child life in case the mother has nursed the infant from her own breast. Other nutrition displaces every element imparted by the mother. Environment is the master in the situation. After environment there is nothing to question. What may be accomplished in a case after initial lesions, is authoritatively illustrated by the remarkable history of the struggle and courage of author Stephens to prolong useful life by diligent employment of fresh air hygiene in his rooms,—by the sustaining flush of extra nourishments,—by his persistent diversion from self with daily intellectual occupation that had money values and was in harmony with his tastes. It was a great and unusual achievement for a dying man. The dogma about bacilli worming holes into his lungs was never given a thought—he told me that he didn't care a rap about such silly talk, the doctrine was as luny as moonshine for lunch—and he had the temerity to continue to live and to work till the accident of another grippe brought the finale.

1726 North Twenty-second Street.

PNEUMONIA AND ITS MANAGEMENT.

BY A. N. ULRICH, M.D.

A CASE of pneumonia complicated by suppurative inflammation in the left shoulder joint, with pneumococci in the pus has been reported by Cave. This affection is essentially one of adult and advanced life, and commoner in males than in females. The arthritis is commoner in the upper extremity than in the lower, while in nineteen cases inflammation was confined to a single joint. With the exception of the hip the larger joints seem more prone to be affected than the smaller. In twenty-seven of thirty-one cases, one or more of the joints suppurated, in one case the occurrence of suppuration was doubtful, and in three cases there was no suppuration, the fluid effused into the joint being of a sero-fibrinous character. In all of the cases with one exception, the pneumococcus was demonstrated in the fluid in the joints, but cases have been reported of suppurative arthritis following on a recent attack of pneumonia, in which the pus was sterile.

This arthritis is commonly found with other localizations of pneumococcic infection; this associated lesion is frequently in a vital part, and more directly threatening to life than is the arthritis; thus often there has been a widespread infection of the system by the virus, with malignant endocarditis (six cases), pleurisy and empyema (five), pericarditis (two), nephritis (three), meningitis (six), and peritonitis (one). In some cases there was a simultaneous inflammation of more than one serous membrane; this tendency to infect more than one serous membrane at the same time, being pronounced in certain cases of tuberculous and common septicæmic infections. The symptoms vary from pain and slight swelling limited to a single joint, to an intense inflammatory œdema of the whole neighborhood of the articulation or of a whole limb, with severe pain, heat, and redness, with abnormal mobility from destruction of the ligaments, and with grating of the bared surfaces of the bones. The fever is generally high, ranging from 102° to 104°. The nature of the arthritis can be determined only by its association with pneumonia or other pneumococcic infection and by bacteriological

examination. The prognosis is grave, both as regards danger to life, and the ultimate restoration of function to the joint. In the cases that recover progress is slow, extending over many weeks, and the function of the joint as a rule permanently impaired. In suppurative cases which comprise the majority, incise the joint, with flushing, drainage and fixation, as in any other acute suppurative arthritis. In convalescence treat stiffness and adhesion in and about the articulation on general principles, by massage, by douches, and other hydrotherapeutic measures, or by hot air baths, and when necessary by forced movements of the joints; in all cases follow by suitable exercises for the restoration of wasted muscles and the preservation of mobility.

Loomis stated a truth when he wrote that the diagnosis of pneumonia at an early stage, and of so-called central pneumonia at any stage, may be a matter of no little difficulty, so that it would be a great gain to possess a ready and reliable means of recognition when usual physical signs and symptoms are lacking; such as the demonstration in the blood of leucocytes that exhibit a peculiar reaction to iodine, for which reason the name "iodophilia" has been given to it by Dunham. While this reaction is not exclusive to pneumonia, occurring also in the presence of suppuration and of some other disorders, these other conditions are readily recognizable by other means. To develop the reaction expose a spontaneously dried blood smear to the action of a solution containing three parts of potassium iodide and one part of iodine in one hundred parts of water, brought up to a syrupy consistence by the use of gum arabic. The lymphocytes and the eosinophile cells are not normally affected by the stain, while the polymorphonuclear neutrophiles either are unaffected or their protoplasm is tinged a faint pinkish or brownish color; under some pathological conditions, the protoplasm of a certain proportion of the polymorphonuclear neutrophiles takes on a reddish brown color, which in some is diffuse, in others forming a granular network, in still others appearing in large or small refractive granules varying from a light pink to a dark red. The condition seems to occur always in the presence of progressive suppuration and of progressive pneumonia. The special value of the reaction in cases of pneumonia resides in the fact that it occurs before their appearance.

Little change has been made in the treatment of pneumonia which has been in vogue during the past few years; the anti-pneumococcus serum, from which so much was promised, is not generally used. It has been tried by Lambert and Tyler, and both of them report that they are unable to convince themselves that it has any value; the best that can be said for the serum is that it does not interfere with any other treatment, nor is it harmful in any stage of the disease. Creosote is the only new drug which has been extensively used by a large number of practitioners. Enthusiastic articles have been written, and some even claim that it is almost a specific, but it is doubtful if the results warrant such conclusions.

The term pneumonia covers a number of morbid conditions which have as their prominent symptoms a grave degree of pyrexia and the physical signs of inflammation of one or both lungs; but the disease is not the same when it follows on severe chill in a a person already exhausted by exercise, previously to all intents in good health, and when it occurs in the course of rheumatic or enteric fever, or as part of a general pyæmia. Bear in mind as far as possible the etiology gleaned from the history of the patient and from the condition of his vital organs. The treatment of pneumonia has long been a battle ground whereon physicians have met in severe combat to prove the special advantages of varying methods of therapeutics; Duckworth states that he was brought up in the camp of a famous general, Bennett of Edinburgh, who took the field with overweening confidence, and with supporting and restorative treatment declared that he won all along the line over his opponents who ventured to employ such drugs as antimony and mercury, or were so ignorant as to bleed in this disease. This battle has been fought out, and in the light of modern therapeutics we know that the truth was really on neither side; that in point of fact there is no routine treatment for any person suffering from diseases that may be similar in name, for each case must be a study by itself, and while one may need to be treated by lowering measures, so-called, another may require supporting medication.

When the lungs are involved we may find three conditions of pulmonic inflammation: first, ordinary croupous or lobar pneumonia; secondly, an engorgement of the lungs without actual consolidation, a condition described by Sir Andrew Clark as "soaked" lung; thirdly, broncho pneumonia or the so-called catarrhal form, one rarely occurring in adults, though frequent in children and old persons.

As to the physical signs accompanying the second condition, no bronchial breathing is audible over the patches of dulness; there are rather silent areas and others over which mucous rales may be heard, while in the influenzal variety of broncho pneumonia, patches of dulness may be found, and these may be migratory pneumonia migrans with limited bronchial breathing and more abundant mucous rales. Asthenia is the prevailing character in this form; many of the fatal cases in elderly persons being of this nature, the cardiac failure being very marked. In the more classical forms of pneumonia the bases rather than other portions of the lungs are involved; the right base is especially susceptible to the disorder, and so far as prognosis in any case is concerned this is rather favorable. Pneumonia of the apex is peculiar in several respects; one should be anxious as to the future, because this condition may clear up tardily and prove to be the forerunner of tuberculosis; it is very singular to find how powerfully impressed the nervous system may be in apex pneumonia. Delirium is extremely frequent in such cases, both in young and elderly patients. The character of the expectoration does not always accord with that commonly given in text-books. Rusty sputa is a good indication; thus a sparely built man suffering from acute pneumonia with very bloody sputa is likely to do well, but in many cases no rusty sputa is seen and there may be no expectoration of any kind. In rheumatic pneumonia it is the rule to have their mucous mucopurulent expectoration without any blood. Of far worse import is the dark colored sputum, which has been likened to "prune juice" or "liquorice water," and which may become somewhat of a dingy green color. This is an indication of a low type of

the disease, indicative of asthenia with a tendency to gangrene.

Patients with pulmonary emphysema are particularly bad subjects for pneumonia, and they almost always die of it. Hence it is a fatal disease for those who have long had bronchitis, and any renal disorder is a serious factor while cases of chronic parenchymatous nephritis are almost certainly carried off by pneumonia. Renal adequacy is necessary of the effective metabolism which is called for in an acute disease. Note that a distinction must be made in the pneumonia which is not uncommon in gouty persons. They are apt to suffer from repeated attacks and commonly recover; in many of these cases the kidneys are hardly fully efficient, inasmuch as some degree of interstitial nephritis or cirrhosis may be present. A considerable degree of pyrexia is to be expected. A temperature over 104° F. excite some apprehension. From the fifth to the eighth day look for a crisis with a rapid fall of temperature and sweating. With this comes general relief, but, withal, no alteration in the physical condition of the lungs. For many days after a favorable crisis the pneumonic signs may be well marked, though steadily subsiding. Patients with pneumonia generally come first under our observation with marked fever and lassitude. The face is flushed, the eyes are bright, and the lips dry. There is often frontal headache; the respirations are hurried, about half the pulse rate, with a short, teasing cough. Place them in a warm bed; Gull was wont to regard this as the all essential part of the treatment. If there be pain in the chest, a warm linseed poultice, the so-called jacket poultice is of great value, but this treatment is not necessary or desirable in warm weather unless there is pain. The pain is almost certainly due to some degree of pleuritis over the engorged lung. Practice varies in respect of early internal medication; in England in most cases quinine given in two or three grain doses every six hours in a mixture with chloroform water are excellent; another good remedy at this stage is potassium bicarbonate with ammonium carbonate, fifteen grains of the former and four or five of the latter four times a day. Ammonium chloride, well sweetened, is also of much value in fifteen grain doses every six hours. Nowadays we seldom bleed in pneumonia; the indication for it is extreme engorgement of the right side of the heart and of the venous system. In this case a small bleeding from the arm (to the extent of six or eight ounces) may be very helpful, but the idea of cutting short the disease by bleeding is not now entertained as it was formerly. When the lung is consolidated such a result cannot be looked for; but a free bleeding within twenty-four hours of the outset of the disease may materially check circumscribing its subsequent development, but we seldom have such an oportunity. In aged or broken down subjects, hesitate to draw blood unless for mechanical relief, and then only to the extent of a few ounces. A slight degree of jaundice may occur in patients with pneumonia; this was formerly thought to arise only in cases where the lower lobe of the right lung was involved. It is now known to be due to engorgement of the liver due to a loaded state of the right chambers of the heart, and with this is commonly found a turgid state of the jugular veins. Stimulate the circulation and reinforce cardiac power by digitalis and alcohol; a mild mercurial purgative may aid in this condition. Failing these measures, a small bleeding may be practised with advantage. The so-called heroic treatment was supposed to cause a larger mortality than that now practiced and called the "supporting" plan. Loomis has called attention to some statistics which throw light on this matter, and the conclusion to be drawn from these is that the mortality from pneumonia varies very little under any method of treatment. Duckworth is satisfied that harm was often done in the "chronic" cases by slavish routine practice, and harm is done nowadays by an unwholesome abstention from methods of treatment which are occasionally called for, but which the modern practitioner is too timid to practice, either for want of experience or in deference to the opinions of the public which has fully made up its mind as to the manner in which it will be treated, for the public has decided that bleeding is a "thing of the past." In the legitimate practice of physic, bleeding is not a "thing of the past" and never will be so long as our art is practiced, but bleeding was abused, and mercury and strong medicines were given in too large and too frequent doses in former days, but we have now learned the rightful and proper place for powerful agencies, and the honest and unbiased physician will employ them whenever they are indicated. The dietetic treatment is that for acute disease with pyrexia; milk diluted with barley water or some aerated water is excellent, and given with ice is very grateful, so are beef tea, and broths of veal, mutton, and chicken. If there be dislike to any of these, Valentine's beef essence given in teaspoonful doses in a wine glassful of iced water may be given. Whey is a very good liquid form of nourishment, and eggs and milk or egg flip are useful. Alcohol is not generally required in any case for the first few days, and in young persons the disease may run its course without its aid at any time, but a soft bounding pulse, increasing temperature, cyanosis and accompanying weakness of the heart's sounds call for it. Give port wine or brandy, in quantities varying according to circumstances from one to eight ounces, but in broken-down patients, drunkards, and old persons twelve ounces or more may be needed; often add digitalis in the form of ten or twelve minims of the tincture to each dose of the medicine, and with this as much tincture of nux vomica. With any obvious failure of cardiac power, try hypodermic injections of strychnine. It may save life and turn the scale in a right direction in a crisis.

When the patient has passed the crisis and craves solid food, he may have it, and the amount of stimulants may be reduced day by day according to circumstances. Convalescence is rapid in the young and in previously healthy persons, but the physical signs in the lungs may only gradually disappear; resolution may in such cases be hastened by the application of a cantharidine blister over the affected side. Tardy resolution is a source of anxiety in persons of tubercular habit, especially if there has been "apex pneumonia;" the greatest care must be taken to procure as rapid and complete a recovery as possible. Change of climate and special precaution during the succeeding winter may be imperative. Woolen underclothing should always be worn by everybody, but many persons, apparently intelligent, neg-

lect this simple preventive of pulmonary disorders. In no part of the world may this simple precaution be neglected, and it is as necessary in the tropics as in higher latitudes, and overheated rooms in winter are a fertile source of pneumonia The atmosphere is thus dry and unwholesome, and it becomes positively dangerous to go into the open air during a frost unless wrapped in fur; these sudden changes of temperature are very risky for any but the most robust. Spring and early summer bring most cases of pneumonia, for people are induced by lengthening days to discard winter clothing and to believe that summer is upon them, and therefore to expose themselves to dangerous chillings.

The treatment as practiced to-day in four of the largest hospitals of New York, viz., the Presbyterian, Roosevelt, New York and Bellevue, is described by Loomis; it is practically the same in all these institutions, and the following will represent the present general method: When a patient enters any one of these hospitals suffering from pneumonia, he is given calomel, usually in small doses, often repeated, followed by a saline in the morning; the calomel is repeated during the course of the disease if necessary. All the hospitals at the present time apply local measures to the affected lung, when the pain and distress is intense; linseed poultices being used more than any other local application, but these applications are not used by the general practitioner, as much as they are in the hospitals. In some of the hospitals the pneumonia jacket is used; this is not in use in others. The treatment of fever varies more than anything else; thus some hospitals tub most of their cases with a temperature of 103 degrees and over, when they are alcoholic and delirious, and sponge regularly every three hours for ten minutes all cases when the temperature reaches 102 degrees. This plan of checking fever is not adopted by all; 103½ degrees is the ordinary sponging temperature; at some they wait until the temperature reaches 104 degrees, and then use wet packs applied to the anterior half of the body, and wrung out of water at 80 degrees. The treatment of the fever in pneumonia is not now considered so important as it was formerly; but we can all remember the time when cold sponging, antipyretics, drugs, etc., were constantly employed to keep the temperature below 102 degrees; now a short run of temperature in this disease is known to have but little effect on cell protoplasm. Some bacteriologists claim that the pneumococcus will not grow at the high temperature (104 degrees), while they thrive at a temperature of 102 degrees or below, and therefore advise not to attempt to reduce the fever in pneumonia. For the severe pain over the affected lung, so often the prominent symptom of the ushering in stage of this disease, two methods of relief are in vogue in all the hospitals: (1) Poultices to the side; (2) morphine hypodermically if necessary. At one of the hospitals they often strap the side in place of applying poultices; for the insomnia, often a distressing symptom, the one drug which is universally used is codeine in ¼-grain doses; which at some hospitals is often combined with 15 grs. of trional. The drug which is next most commonly used for this condition, is bromide of potassium in 20-grain doses. Three of the hospitals use codeine (gr. ¼) for cough, and one uses heroin. Of course the critical time in a case of pneumonia begins with the evidence of cardiac failure, so that the first indication of systolic weakness and failure of arterial tonicity, leads to the administration of cardiac stimulants. The three cardiac stimulants which are used in all the hospitals, are alcohol, strychnine and digitalis; of these the one that stands first, and on which the greatest reliance is placed, is alcohol, in the form of whiskey, and practically always in the constant dose of one-half ounce, the time of its administration varying from every four hours to every hour. Loomis states that there has been a peculiar thing about the use of the second drug above named, strychnine. Strychnine was seldom if ever given as a cardiac stimulant in pneumonia; now it is universally used. When we remember the physiological action of this drug, how it stimulates the heart and tones up the arterial system by its direct stimulant action on the vaso motor centres, and not (like alcohol and digitalis) by action on the heart muscle and the arterial wall, we find an explanation of its effectiveness, and strychnine is never followed by the secondary depression so often seen after alcohol; the two indications which call for its use are: (1) When whiskey is not able to hold the heart, they always use it, secondary, however, to whiskey to reinforce it, as it were; (2) when there is evidence of pulmonary œdema and cyanosis, then it is generally given hypodermically in one-twentieth grain doses. At two hospitals this second symptom is the special indication for its use. All alcoholic cases were especially found to respond to the action of this drug. At the hospitals, when in spite of alcohol and strychnine the pulse became very rapid (130 and over) and feeble, digitalis was given, either mv of the tincture every three hours, or Mij of the fluid extract every four hours, but this drug is not given as a routine practice, but only when, after whiskey and strychnine have both been given, heart failure is found to be increasing. The only other drug used in the hospitals was nitroglycerin; all the hospitals use it occasionally. Besides the pulse of high arterial tension, that may call for its use in any case, cyanosis is the one symptom that especially indicates its use. At one or two hospitals it is always used when cyanosis becomes marked; at once, when œdema of the lungs develops it is generally given. Atropine and caffeine are not given in a case of pneumonia in any of the hospitals. Oxygen is always given as soon as pulmonary œdema develops and cyanosis is marked, and one improvement in the administration of oxygen is its earlier use; it is not now only given as a last resort. Formerly when the oxygen tank came into the sick-room the end was near; this is not so now, and at some hospitals they use it often early in the disease, for labored breathing, and always when there is the least cyanosis. During the past year or so a number of drugs have been tried in pneumonia and discarded; for example, potassium iodide in Zi doses a day, and sodium salicylate in large doses reaching half an ounce per day. Weber reports striking results in the treatment of pneumonia with carbonate of creosote (creosotal), and gives the details of 9 cases treated uniformly good results. The pneumonia was of the lobar type, and affected one or both bases, but in one or two instances it was diffuse and lobular in distribution. The average dose was 60 grains of the drug per diem, after the administration of which the tem-

perature always subsided and kept low, and the patients also said they felt much better generally. There were never observed any symptoms of gastro intestinal irritation or depression, and of the 9 patients treated, 8 recovered completely. The ninth also recovered, but died at a later period of cardiac and hepatic complications which had already existed, Weber believes that the remarkable effects obtained were not attributable to antipyretic or bactericidal properties of the drug, but suggests that the action must be antidotal to the toxins of pneumonia; the dietary and nursing was as usual, but directly the patients were treated with the carbonate of creosote improvement began to show itself so strikingly that anxiety could be removed from the prognosis. He claims that we have in creosotal almost a specific remedy for lobar pneumonia. Van Zandt also highly commends the use of creosote carbonate; he concludes that with it a large percentage of pneumonic cases are cut short or aborted; almost all the rest are mitigated, and the remainder, a very small number, are not at all affected by the remedy; he prefers the carbonate as the most agreeable form, as it is almost devoid of taste and odor, and may be given in an emulsion, stirred in hot sweetened water, to be taken during agitation, as it does not dissolve. It should not be combined with alcohol or acids, as these develop the taste and odor of creosote. To an adult 7½ minims may be given every three hours. Perreau has carried on a series of investigations on the treatment of pneumonia by the method first suggested by Dreyfus Brisac, by ipecacuanha. This method has for its object a depletion of the lung, and, as a consequence, such a modification of its tissues that microbic infection is counteracted; it consists in giving a sufficient dose of ipecacuanha to obtain a nauseating effect, without inducing digestive trouble. Ipecacuanha powder, gr. xv, is diluted in Ziv of mucilage, and a tablespoonful is given every hour of about eight hours. The administration of the drug is usually tolerated, but at the same time a certain amount of practice is required, as it is necessary to avoid either vomiting or diarrhœa, which may be accomplished by lengthening the interval between the doses; diminution of dyspnœa and pain appears, increased and easier expectoration, sputa perceptibly less blood-stained, reduction of temperature, and, lastly, a general improved state of the patient's well being. The action of ipecacuanha may be harmful in the presence of very marked defect in some part of the digestive tract, or pronounced cardiac disease.

Pneumonia is certainly one of the most fatal diseases, rivaling pulmonary tuberculosis in its high percentage of mortality. The United States Government Reports (1901) show that it is the one disease whose mortality is steadily increasing, all other diseases showing in the past ten years a diminished mortality. The increased prevalence of influenza has been suggested as a cause of this increase, and it is known that the life insurance companies pay more death claims from pneumonia than from any other disease. One writer states that of all persons who reach fifty years of age in the United States, in good health, one-fourth die of pneumonia; and of all who reach seventy-five years, nine-tenths die of pneumonia. The records of the hospitals extending back forty years teach "that however varied the treatment may have been, the mortality of the disease was essentially the same." Hospital statistics show that the mortality ranges from 20 to 40 per cent.

It has been stated that "75 per cent. of the cases of true croupous pneumonia are caused by the pneumococcus alone; about 15 per cent. by that in combination with the influenza bacillus, streptococcus, staphylococcus, colon bacillus, etc., and the remaining 10 per cent., a very liberal allowance, by various bacteria other than the pneumococcus." Eason, out of fifty-four cases of lobar pneumonia, found twenty-four patients with unequal pupils, the inequality being due to unusual dilatation of one pupil. Twenty-one of these had the large pupil on the side on which the signs of pneumonia were detected. He suggests that the condition of the pupils may be explained by the irritation which the pneumonia causes to that part of the sympathetic system which is known to act as the dilator of the pupil; other indications that the sympathetic nerves in this region are irritated in pneumonia, are seen in the flushing and pallor of the face, and in some cases a distinct though not great protrusion of the eyeball. Mallard claims that pneumonia in fat people never has the same severity of onset as ordinary cases; here pain in the side is usually constant, and may be severe, while cough is a very troublesome symptom; the initial rigor, which is so characteristic and severe in ordinary cases, is in the obese replaced by several rigors not so severe and similar to those seen in pleurisy; and although the temperature is elevated it does not attain the same degree of elevation as in other cases, and dyspnœa is never very severe. There is considerable tendency to general congestion of a passive kind, while albuminuria is frequent. Baruch claims that cold water meets all the indications for which powerful remedies were formerly applied, accomplishing this without their depressing effects; for example, what affords more comfort to a child suffering from pneumonia than a tub bath with good friction in water of 95 degrees, reduced during five to eight minutes to 85 degrees F.? A few baths repeated every four to six hours, without confusion, at the bedside (not in a bath room) calm the respiration, reduce temperature, promote sleep, slow and strengthen the pulse, and refresh the oppressive nervous system. In the interval between the baths, if the temperature and pulse are high, he wraps around the upper half of the trunk a compress made of three folds of old linen and wrung out in water 65 degrees F., covered by a wider bandage of one layer of thin flannel, snugly wrapped over the compress. Hourly renewals of this compress retains the good effects of the bath, and their frequent repetition is unnecessary. In the adult the tub bath is not so useful, because it involves more trouble, especially if pleurisy be present. Here the wet compress, not too firmly wrung out of water at 60 degrees, usually fulfils all therapeutic indications; repeated every hour, or oftener, if it is hot when removed, its application causes a deep inspiration, a betterment of the pulse quality, and an increase of urine, which is also increased by draughts of 4 to 6 ounces of water at 45 degrees, given regularly every two hours.

Barr claims that the large majority of pneumonic hearts make a desperate struggle for continued ex-

istence; the failure takes place from: (a) Granular degeneration of the muscular fibre induced by continued high temperature, and by toxæmia; (b) low arterial pressures, which prevents proper nutrition of the heart and produces a syncopal condition; (c) the interference with the proper action of the respiratory pump from any cause leads to overloading and ultimate failure of the right side of the heart. Our indications for treatment, therefore, are: (a) To lower the temperature and control the inflammatory process at the earliest possible period before stagnation of the blood and hepatization have taken place, and thus preserve, so far as possible, the integrity of the respiratory apparatus; (b) to maintain fair systematic blood pressure; and (c) to keep the respiratory pump acting by lessening the frequency and increasing the depth of the respirations.

Snively, in an interesting paper on the result of the treatment of croupous pneumonia with anti-pneumococcic serum, believes the serum proper for pneumonia to be an anti-infectious serum, one produced by an experiment animal in response to repeated injections with living germs; then its protective power rests in its ability to destroy living germs, of the same kind, in the body of another experimental animal, or in man. Hence it should differ in its preparation and mode of action from the more familiar diphtheria and tetanus protective serums, which are purely antitoxic, formed by injecting horses or other experiment animals with toxic products of bacteria, not live germs, and their activity is exerted in neutralizing the toxins. The clinical symptoms of pneumonia are due to the formation of a very strong poison, or a milder poison in very large amounts, and the strength of anti-pneumococcic serum can be learned by its ability to protect susceptible animals against many times the fatal dose of living germs. Speaking of a number of cases observed by him, in which the anti-pneumonoccic serum was used, Snively says: "The number of cases is still too few to warrant the expression of a definite opinion as to its final value as a therapeutic agent. As a rule the cases did better than was expected, but certainly no striking curative effects were aparent. The cases did not develop pneumococcus blood infection, and it seems probable that the serum may be able to prevent a general infection from taking place from the diseased lung, even though it may fail to influence the local process."

The Biograph in Medicine is the subject of an interesting paper by W. G. Chase (*Bost. Med. and Surg. Jour.*, Nov. 23, '05), who describes the picturing of epileptic seizures. Some patients of the Craig Colony were placed at his disposal, and he biographed twenty-one seizures, including one case of status epilepticus. Photographic details are set forth. Chase believes that this method of illustration will play an important part in the future of medical teaching. He secured pictures of a rare case of double mystagmus, in which the movements of the eye are clearly seen. A group of rythmic idiots have been pictured, each with his individual motion and keeping time to music. In some of the photographs accompanying the paper both the stuporous and convulsive stages are pictured; the very action of the muscles may be studied in these pictures.

A CONSIDERATION OF ATROPHY.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

HAVING assumed in the preceding paper that vascularity, which in the ultimate is nutritional, is all there is of visible phenomena, in so far as it relates to the higher physical, it behooves in the present instance to attempt an explanation thereof, for if on the one side we have protoplasm, and on the other nerve, then as an intermediate corrolary or connecting link should be found in interpretation. If as we have assumed the dilatation of vessels, which is plethora, is hypernutritional, and the contraction of the same, which is anasmia, is subnutritional, it is obviously unnecessary to assume an intermediate ground, for the intermediate must be life itself and its rhythmic flow. Should we assume that life is the sum of the functions that resist death, which was first promulgated by Bichat, we at once open the door to the proper question of what these functions really are, for truly such undefined assertions prove nothing. The maintenance of a part in its nutrition must not be understood as being the maintenance of an unchanged state, rather each part may be said to present a series of minute, progressive changes, slowly effected, and consistent with that exercise of its functions which is most appropriate to the successive periods of its existence. Indeed, were we confined in our definition to any one statement, we would of necessity proclaim all progress to be conditional upon two phases, but we are not now concerned with the same save as it relates to the physical. To assume that nutrition is all there is of visible phenomena, or that all else is subservient thereto, at once directs our attention to how organisms have arrived at the exalted position they hold to-day. An examination of hypertrophy on the one side, and of atrophy on the other presents great and intricate problems, for in the end and having carefully distinguished atrophy from such causes as arrested development (the same being a decrease in the amount of a tissue, owing to diminution either in size, or number, of the histological elements of which it is composed) and atrophy of a whole body or of a part thereof, is always sure evidence that the total or local nutritive exchange is disturbed so that waste exceeds repair, and while atrophy in its strict signification consists simply in a diminution in size or in number of the component elements of a tissue, it is rarely a perfectly simple process but is usually associated with more or less fatty degeneration, which indicates fault in the chemical processes of the cells.

In hypertrophy we have the exact opposite of this former state, for hypertrophy means increase in size due to enlargement or multiplication of the normal constituent elements of a part or tissue, all being affected proportionately so that external form and minute structure are alike preserved. Now it is well known that we often cannot say whether a given hypertrophy is due to excessive vital energy of the cells of a part, to the setting apart for its embryonic rudiment of too large a number of cells, to diminution of the resistance to growth, to an ampler food supply, or to diminished waste. However, there are two modes of hypertrophy, the one occurring with growth and the other with development, just as there are two modes of atrophy, the one with simple increase, the other with degeneration of tissue. In both, of course,

there is a loss of functional power in a part; but in one this loss is due to the deficient quantity, in the other to the deteriorated quality of the tissue. But as in hypertrophy, the development and the growth of the affected part usually concur, so in atrophy a part which becomes smaller usually also degenerates, and one which degenerates, usually becomes smaller, and the distinction between degeneration, which is the ultimate of decreased vascularity and disease, is essential though often it may be obscure. Degeneration, as to its process, is natural, though it may be premature. Disease is always unnatural, the one has its origin within the body and is structural, the other without, and is microbic. The one is constant, the other as various as the external conditions in which it may arise. To the one, we are prone because it is nature's way of working, to the other only liable. The general diagnostic characters of degenerations are such as may be observed naturally occurring in one or more parts of the body at the approach of the natural termination of life, or, if not then beginning, yet then regularly increasing, they are also changes in which the new material is of lower chemical composition, i. e., is less remote from inorganic matter, than that of which it takes the place, thus fat is lower than any nitrogenous organic compound, and gelatine lower than albumen, and earthy matter lower than all these, and in structure the degenerate part is less developed than that of which it takes the place, it is either more like inorganic matter or less advanced beyond the form of the mere granule or the simplest cell. Thus the approach to the crystalline form in the earthy matter of bones and the crystals in certain old vegetable cells are characteristic of degeneration, and so are the granules of pigment and of many granular degenerations, and the globules of oil that may replace muscular fibre, or the contents of gland cells, and of cholesterine that are often mingled with the fatty and earthy deposits. Seeing, therefore, that atrophy and hypertrophy which on the one hand tends to degeneration, and on the other to compensation, is not disease, but that they are at all times related thereto, and in each case tending toward the same, and finally reaching it if unchecked, but that in themselves they merely represent hyper and sub-nutrition, it becomes our obvious duty to inquire what position these diametrically opposite condition or states have played in the evolution of organic life as we find it to-day, first as to atrophy. It is well known that the simplest forms of life are practically immortal, that when a microbe-like micrococcus divides, nothing dies, and throughout the whole series of successive divisions the primitive life is preserved. On the other hand, in the case of higher animals, such as man, there are both mortal somatic cells and reproductive cells.

The mortality of the somatic cells being evidently an acquisition or fixed advantage, but there exist multicellular organisms derived from creatures which had acquired the division into mortal somatic and immortal reproductive cells, and which have since lost it, all the cells of their body are able to avoid death by conjugation. This occurs in many conjugate algæ-like spirogyra, and in some of the volvolineæ. Most salamanders pass through a larval stage in which they are aquatic and perform their respiration by means of external gills. In this condition they are incapable of reproduction and must undergo metamorphosis to secure propagation of the species. Obviously, then, evolution for the salamander is imperative, and inasmuch as the salamander occupies a certain place in the economy of nature, which is not, and which cannot, be filled by any other form of life, all things being relative, if, therefore, it is necessary that the salamander, which we have chosen as a type for our remarks, cannot maintain its position, cannot multiply, cannot conjugate, nor reproduce its kind, unless it evolute from an aquatic, which is lower, to a terrestrial, which is a higher animal, it behooves us to inquire as to what changes ensue, what is lost and what is gained in the transition. Nor, indeed, is it at all necessary for us to limit our observation to the animal kingdom, for in the botanical species (*Ranunculus-Aquatilis*) we find produced, firstly, submerged leaves and afterward floating lobed leaves, and that the flowers which correspond as in the salamander to the sexual organs are always produced in the axils of the floating leaves. Now it must be plainly evident that for the salamander on the one hand, and for the *Ranunculus-Aquatilis* on the other, to rise from aquatic to land or air breathing species, something must be lost, for the great advantage gained. Indeed, whatever transformation we may study it will always be found that tissue change is always accompanied by an elimination of some part, or parts, and that in the interests of the organism as a whole, *these useless parts gradually but surely degenerate.* When a whole organism begins to undergo retrogressive evolution and to suffer decay, it is frequently in the interests of some still larger organization, and individuals, or species, out of harmony with their surroundings, disappear to make room for others. All progress, therefore, implies necessary elimination. What are they, and how are they brought about seeing that all progress as it relates to the organic world is necessarily attended by degeneration?

The individual is by no means a slave to heredity but is capable of certain modifications under the influence of certain external conditions. When an organism is placed under new conditions of existence, whether animal or vegetable, when, for instance, it relinquishes a terrestrial for an aquatic life, light for darkness, or fresh water for that impregnated with salt, its external aspect and internal structure undergo variations of considerable importance if it succeeds in adapting itself to the new conditions. A good example of this individual adaptation may be obtained by cultivating cacti alternately in the light and in the dark; Goebel having shown that when a specimen of phyllocactus is cultivated in the dark the stems are prismatic and thorny, if the plant is afterward placed in the light the thorns disappear, and the stems become quite smooth. Now the drying up of Lake Aral caused the formation of a number of basins containing water at various stages of concentration, and as a result, the cardium of the region exhibit a whole series of individual adaptive variations, both in shell structure and form. But it is not necessary to look for exceptional cases, inasmuch as every physician is familiar with the same in the repair of fractures, the direction of bony lamellæ being known to agree with that in which the greatest strain is habitually applied, and the entire structure of a bone is dominated by the

incidences of the forces applied to it. When, therefore, after a badly mended fracture, the two broken pieces are joined by an oblique segment, the trabeculæ in this segment follow the direction from whence comes the greatest strain, a different direction to that which they would have taken had the inserted segment been placed parallel with the two broken pieces. Again we have cases of cellular adaption which may be produced in the course of embryonic life and may result in the formation of an embryo from half or quarter of an egg. Here again the formation of organs takes place under new and abnormal conditions, but there is no transformation of these organs into fresh structures exhibiting characters other than those of primitive and typical organs. In the adult cell adaption may in a more or less normal way cause the formation of new organs. Even completely specialized cells of an organism may, when placed under certain conditions of life adapt themselves to those new conditions and give rise to successive generations of different cells thus generating other kinds of organs than those to which they would have given birth under normal conditions. It has often been truly said that the individual development of an organ is a resume more or less compressed of its historical evolution, but we are sometimes wont to demand a too strict application of this principle to every individual case. Every living organism is plastic, and in its development presents individual variations, although in the main these relate less to embryonology and more to morphology, and although on general principles nature always breeds true and surely never makes a mistake, yet on the other hand we are equally certain that great and lasting modification may ensue during the life history of any organism, for instance, and as is well known, the deep sea include a large number of crustacea, and in these the eyes, which are relatively useless, are often found degenerate. The course of the degeneration is generally definite and of all the structural parts the most long lived are the eye stalks, although we know that these are a recent formation. In nephropsis the optic stalk is short and carries a rudimentary eye which has neither pigment nor cornea and is colored like the general surface of the body. In willemæsia, a relative of the marine cray-fish, and an inhabitant of the Atlantic at a depth of about 3,500 yards, is completely devoid of eyes in the adult condition, although it posseses them in the larval stage. Now the rarety of recapitulation among vegetables is the result partly of their fixed condition in the soil and partly of the rigid nature of their cells. The immobility of a plant forces the adult to live in the same place as the embryo, while among animals it frequently happens that the young pursue a manner of life different from that of the adult, and resembling that of the ancestor. Thus young cirrepedes are vagrant and have the same needs and use the same organs as other vagrant crustacea; larval frogs inhabit the water like their fish-like ancestors, but in plants there is nothing similar, for all the aquatic flowering plants are derived from terrestrial ancestors, and if at the beginning of their existence these aquatic plants were to bear leaves adapted to aerial life they would ensure their own destruction. The absence of locomotion in plants has also produced a greater adaptability than among animals, for animals, when conditions are unfavorable, can within certain limits, remove, in search of more suitable localities, while plants by reason of their fixed condition must become modified, or perish. Plants, therefore, offer numerous cases of individual adaptation by reason of their plasticity. Thus plants rapidly rid themselves of ancestral legacies which have become useless. Now the transitory organs of animals are employed for the service of the whole body, the branchial arches of mammals are employed in the formation of important parts of the head and neck. The tail of the tad-pole is reabsorbed by phagocytes and its substance used for the nutrition of the body. But in the case of plants, however, such occurrences are rare and limited, the cells being enclosed in a rigid wall which resists displacement or alteration; for while the protoplasmic contents may be absorbed and used as nutritive material by another part, yet the cellulose cell wall remains, consequently a useless organ can be eliminated only at the expense of loss of material. Having seen therefore that in the evolution of organisms parts and organs disappear, that certain intrinsic factors become manifest whereby are broken down, reabsorbed, or cast out structures, no longer of service to the organism, which in the ultimate, and taking the larger view of the same as it relates to organic evolution, we must of necessity admit that all organic progress has been along these very lines, and that therefore the universality of degenerative evolution is manifest. If now we should come to inquire how this has been brought about, (and we are not a little surprised to find that the same in all cases relates to vascularity,) that all modification of organs and parts are attended by retrogression, all existing forms having undergone certain modifications, and as a result have lost some part of their structure which is sometimes still manifest as rudimentary organs. Degeneration then being the mode or means of all organic progress, and especially so as it relates to the animal, we find upon inquiry that it follows not definite path, and must never be construed as constituting a return to the primitive condition. True it is that when dissolution equally and simultaneously affects all the parts of an organism the most complicated and delicate structures are the first to disappear, but it must not be taken as a general principle that the most complicated structures are necessarily the most recent, and that consequently degeneration retraces the path of progress, for were this so, we could have no progress. We have said in the preceding essay that vascularity is all we possess of visible and tangible phenomena, therefore we find that evolutionary degeneration is in all cases a vascular change, or what can as in the case of vegetable structure be traced thereto, the exciting causes which are active in producing degeneration being various. Among the animals the development of the teeth furnishes an excellent example, the number of the teeth in human beings is reduced, compared with the number present in lemurs, and in platyrrine monkeys, these have six grinding teeth while in man five is the maximum number, our posterior molar, however, appears late in life, and is smaller than the others, so that it may be useless for chewing, frequently it is absent, in the lower races in 19 per cent. of cases examined, in the higher races in 42 per cent. Now the reduction in number and size of these teeth is due to a reduction in size of the jaw bones, a cause which also frequently produces a distortion in the arrangement of the other teeth.

The rudiments of the wisdom teeth appear on the maxillary tuberosity and on the coronoid process, and it is only after eruption that they come into normal connection with the jaw bones. Among plants there are few cases of atrophy from lack of space, in grasses of the genus Lolium the earlets are arranged in a spike, but in such fashion that only the terminal earlet has space for both glumes. The superior glumes remain; but the inferior which become pressed against the axis disappear after the embryonic development of the flower. But we not only have atrophy (which in the ultimate of course means degeneration) from lack of space, but what is decidedly more familiar to us as physicians—viz., from lack of use. In degeneration of the hyoid apparatus the second arch becomes connected with the third, the parts of which are, in the adult the styloid process, the styloid-hyoidean ligament, and the lesser horne of the hyoid bone, according to the weight of the tongue, the parts of the second arch become more or less developed. In man the suspensory apparatus of the hyoid bone is extremely simple but it is still more reduced in birds, in fact the tongue reduced to a mere cartilage, no longer requires the support of a bony base so that the hyoidean apparatus might be removed from the anatomy of a bird, however, it is present, but in a greatly rudimentary condition, but in the horse, which has a very heavy tongue, the second arch is strong and completely bony. Now in fish the hyoidean system is still more important, although in them this is associated not with any importance of the tongue but with the branchial apparatus. The parts of the second arch being very strong as they form a fulcrum against which the branchial system works, but its main parts are recognizable, nevertheless the hyoidean apparatus is the same in all vertebrates, and its functions are at a maximum in fish, and at a minimum in birds, while in mammals the condition is intermediate. But it is not alone from apparent causes that atrophy may ensue, that is, from causes acting in a direct manner, but atrophy may be correlative with other degenerating organs, or because the whole organism is degenerating, and yet there may be no obvious anatomical bonds present between the related parts, for instance, myxodœma, which is the result of mechanical or functional disturbance of the thyroid gland. Again when the essential sexual characters are absent represented as they are by male and female elements, either congenitally or accidentally, then it is that the secondary sexual manifestations of the parts are degenerate. To these cases of correlative atrophy we may add the cases of leaves on many plants which have drooping or horizontal branches, for here the leaves on the upper aspect are frequently rudimentary, the appearance being most striking where the leaves are opposite, the pairs being at right angles to one another Having shown, therefore, that atrophy or degeneration is the plan or means (and endless examples might easily be given) by which nature has chosen to raise from the organically low, to the organically high, or complex, the various organisms comprising her animate economy, and beholding likewise the general universitality of the law, that whether on the one hand, we behold the vegetable, or on the other, the animal, the process is always the same, although it is not until we approach man that our present argument begins, and having seen that the same is in all cases related and indeed dependent on vascularity, which, of course, always means the blood supply to a part or organ, let us inquire if we can, for at least one example which may serve us in proof of our argument, recognizing as we must that vertebrates, for instance, which move by gentle undulations of the body have lost their limbs for this reason, such as snakes, eels, slow worms, etc., recognizing as we must not only that animals may lose their organs of locomotion, but even their digestive canal, by being parasitic, for an animal that loses the power of digestion, and especially the apparatus capable of performing the same, to my mind represents the greatest and most important factor in organic evolution, for without digestion, or at least the power to digest, there can be no independent life, that alone possible being parasitic, and here absorption is always emphasized and compensatory, nevertheless it highly represents that which we would now emphasize—viz., atrophy, and the power thereof. An examination of a human embryo of about three weeks of age shows the presence of a series of slits on the sides of the neck, the slits not being parallel, but converging towards the ventral surface. Now between these slits are swellings, or pads which pass up towards the dorsal surface and appear like the beginnings of hoops, or ribs, enclosing the visceral cavity, the elevations are the branchial arches, and the slits are the gill slits. In the human embryo as in fish these slits appear from above downwards, and as they are formed the corresponding blood vessels arise. These vessels, or aortic arches, arise from a ventral aorta which gives off six lateral branches at each side. These lateral branches run up between the gill slits and form two main trunks on the dorsal side which converge to form the descending aorta. In man the branchial arches are transformed, parts of them entering into the structure of the face, and during the transformation parts of the aortic arches atrophy, but the order of this atrophy does not correspond in any way to the order of the formation of the vessels, so that degeneration of these vessels in no way represents a retracing of their developmental history, but simply that of nature's way of working to evolve the higher. Now this example, which I have chosen from many, presents to us all there is, or rather the fundamental principles thereof, of organic things and particularly evolution. Should this principle, either in the animal or vegetable kingdom be traced in all cases to its legitimate conclusion, libraries could not begin to hold the books thereon, and yet in this simple example we behold the exact principle or law. It is well known that in the gradually ascending scale organs and parts decay, and perish, thus, when a part or tissue is no longer necessary or in any way becomes a hindrance to the requirements of an organism it atrophies and dies and is either reabsorbed or cast off. The immutable law of life being progress, it is easy to see why this is so, for if organisms are to advance they must do so by some means or process, and this is the way in which nature has deigned to advance us. This in all cases being accomplished by, or through, vascularity, that is, a lessened blood supply, and as we long ago learned the blood being protoplasmic, is likewise nutritional, therefore we of necessity say that there is less nutrition of the part, because the vessels atrophy and therefore admit less

and less blood. It is a common observation of all naturalists and physicians that rudimentary organs exist in almost if not all organisms, all existing forms having lost some parts or organs in the course of their phylogenetic development. This fact admitting of proof in two ways, viz., either there are remaining vestiges of these organs or else they are to be found in other creatures which may be regarded as ancestors. Now rudimentary organs are always signs of a degenerative transformation in the organism itself, are either organs which have ceased to be functional or which have so diminished in importance that their total disappearance would be unattended by any appreciable loss to the organism. Again, in the majority of cases this cessation of function is attended by a corresponding structural decay. In the genealogy of the horse the earliest ancestor Eohippus, possessed five functional fingers on the fore feet, and four toes on the hind feet; to-day the horse posseses one functional finger, and one functional toe, and two rudimentary toes, and two rudimentary fingers, two fingers and two toes having entirely disappeared. Thus all organisms exhibit at least some vestige of organs more or less rudimentary. Instances of rudimentary organs being very common among the crustacea. Among insects, we find them characterized by the possession of three pairs of legs and two pairs of wings. The organs of flight exhibit a multitude of special adaptations, and numerous instances of degeneration are exhibited. In dragon flies, saw flies, bees, moths, and butterflies, the four wings are generally all alike and fully developed. In the Diptera, the posterior wings have atrophied and are represented by two reduced organs, the "balancers," these being absent in certain types. In many other species degenerative changes at one or another stage of their existence becomes plainly manifest. In the Staphylinidæ, the upper wall of the abdomen is so strong that the protection of wing covers is unnecessary; consequently, the wing covers have degenerated into little lamella which cover only the anterior quarter of the body. In the glowworm (female) the wings have totally disappeared.

Among vertebrater the genito-urinary system contains a great number of rudimentary organs, while the vertebrate show the existence of rudimentary organs throughout the whole group, each type and each individual among them exhibiting special degeneration. But it must be at once plain that it is obviously impossible to even mention what has taken place in this connection, for undoubtedly throughout the whole scale of organic evolution, rudimentary organs have been left as it were to remind us ever that change is the keystone to progress, and while it would be entirely possible to trace in many instances this very unfolding, we consider this entirely unnecessary, seeing as we must, that to us belongs the study of man, in whose ancestors the entire surface of the skin was covered with hairs, and yet to-day who would be so bold as to say that man is covered therewith, the hairs by which he is clothed being entirely rudimentary? According to Hertwig, the teeth should be regarded as part of the tegumentary system, as they really represent the scales of the skate situated within the buccal cavity. In man the last molar or wisdom tooth, is a rudimentary tooth. The small sized shallow crown, the diminished number of tubercles, the fusion if the roots, the tardy appearance and occasional absence altogether, are all indications of a rudimentary condition. With few exceptions, the articular surfaces of the bodies of mammalian vertebrates are covered in youth with bony plates. These sometimes become very thick and are called terminal epiphyses. In some mammals these have entirely disappeared, for instance, the Sirenians. While in man, they still exist, but in an advanced stage of degeneration. In the lower vertebrates, such as crocodiles, many more ribs are functional than in man. In these animals all the ribs connected with the cervical vertebra are functional, whereas in man they have degenerated. Other rudimentary skeletal pieces are the lesser horn of the hyoid bone, the hyoidean ligament, the coracoid process, and the interclavicular ligament. In the muscular system, the cutaneous muscles, those that move the shell of the ear, and really those that move the tail, which in most animals are well developed, are still present in man but have degenerated; further, there is to be found in man the intra-acetabular part, or the round ligament, of the deep flexor muscle of the toes which is functional in some animals, as in young ostriches, while in the adult ostrich the intra-acetabular part is separated from the rest of the muscle, which is attached to the pelvis. In the horse traces still remain of a connection between the intra- and the extra-acetabular parts; the muscle itself being divided into two parts, the pectineal muscle in the thigh, and the deep flexor in the toe, situated in the leg. In the orang-outang, this degeneration has made further advances than in man, the intra-acetabular part of the muscle having entirely disappeared.

In quadrupeds the intercostal veins are vertical, consequently blood here flows against gravity, therefore, these veins contain valves which indirectly facilitate the upward and onward flow of blood, by preventing it from running back. Man being a biped with a vertical thorax, is provided with intercostal veins that are almost horizontal, the ancestral veins being no longer indispensable are therefore in a condition of atrophy or degeneration.

In the special sense of smell we find our argument proven by finding a degenerate Jacobsons organ. In the organ of sight, there is a third eyelid in a state of degeneration. In that of hearing, there remains on the shell of the ear, a kind of point which is the last remaining vestige of the ancestral elongated and pointed ear.

But why multiply instances? Seeing that Nature in the evolution of organisms has deigned to follow a universal rule, that she has established a law, and that this law is far reaching and everywhere present, that it subserves the phenomena of life everywhere upon the globe, that its full exercise is death not only to a part or organ, but to the whole organism, if general, that upon it even life itself and its rhythmic flow is constantly dependent, but we must recognize more than this, for we must ever keep in mind that as all cases of atrophy are vascular, and therefore relate directly or indirectly to the proper flow of blood to a part, and consequently to nutrition, and what is more that no matter how it is brought about, no matter how it acts, whether loss of function be primary and act as a cause, or secondary and be resultant on other causes, that, whether it act as

cause or effect, it is nevertheless nutritional, and always results as a vascular interference, by which less blood reaches a part or organ. Normally, then, atrophy within the animal body should not, and cannot, be looked upon as disease. It is only when from its perseverance it becomes excessively and suddenly degenerative that death ensues, and the same may be even said for degeneration itself, for degeneration is mostly but an advanced stage of atrophy. It is only by attacking vital organs whose hourly function is imperative that atrophy becomes dangerous, and it is never atrophy that kills but misplaced or misguided atrophy (if I may be allowed the term), *and this is never after nature.*

SUGGESTIVE THERAPEUTICS.

BY W. T. MARRS, M.D., JEWETT, ILL.

PART III. DIPSOMANIA.

AS intimated in the first article, deep hypnosis approaching somnambulism is seldom necessary for the best therapeutic results. A state of passivity or mild hypnosis is all that is ordinarily required. During this state the patient is conscious, but from choice is rather oblivious to his surroundings. In the complete hypnosis he is, when the suggestion is given, wholly oblivious to all environment except the voice of the physician.

To secure the degree of hypnosis desired the method I give will, with perhaps a little modification, be successful in nearly all cases. It is well to always first gain the patient's sympathy and confidence by well-chosen words and actions. Allow no one present, especially one who is inclined to scoff. Do not indulge in levity yourself. Humor is all right in its place, but here it is fatal. Maintain the stolidity of an Indian, but be polite and agreeable. Cultivate a musical, monotonous tone of voice. Let your words be well-chosen and to the point. A little euphony may be indulged in and impressive words and sentences should be repeated and emphasized. If the patient be a woman who suffers from lumbago, ovarian pains and a general neurotic condition without much pathology to account for it, the following method will be illustrative: "Sit comfortably in this chair. Relax your muscles. Compose yourself and be at ease. Note your breathing. Breathe regularly. Your eyelids are growing heavy and tired. Your eyes now close. You are at ease and free from care —as free from care as when you were a child playing in the meadows or romping in the wildwood. You are heedless of everything save only the sound of my voice. I make light passes over you, and where I touch you a slight numbness creeps over you. This feeling becomes more profound and your pain is now all banished. The blood supply to the affected parts is lessened and the nerves which caused the pain are relieved of their tension. The energy which was necessary to cause these aches and pains will henceforth go toward aiding digestion and nourishing and feeding your nerves. Through the aid of your will your brain and nerve centers will become less responsive to pain and soon you will be permanently relieved. When I count three you will be fully aroused, free from pain and in a hopeful, cheerful condition of mind. One, two, three!"

This seance need not last more than fifteen minutes. A few treatments thus given will, with good hygiene and correct living, relieve many stubborn cases that have gone the rounds of physicians. Should you possess a static machine these suggestions may be driven home with less talk on your part. The static breeze is only a form of suggestion. The passive and expectant mood of the patient will invariably make the static breeze of benefit. I do not wish to leave the impression that static electricity is without bona fide value, but I wish to emphasize the fact that the buzz and glamor of the machine is a powerful suggestive agent. In the case just illustrated the post-hypnotic suggestion that the patient will be better and will constantly improve, etc., is a very strong factor toward bringing about her relief.

The value of hypnotic suggestion as an aid in producing chloroform and ether narcosis is very great indeed. The patient should have his mind put at ease and all doubts dispelled. If his mind is made passive and free from anxiety when the anesthetic is first administered narcosis will occur in a much shorter time and the stage of excitement obviated. Fear is usually the cause of the excitement and obstreperous conduct so often encountered. If the patient is made to feel that he is simply going into a natural sleep, the anesthetic will not require crowding and much of the danger will thus be obviated. A professional anesthetist should also be a skilled suggestionist. The environment of the person about to take chloroform should be cheerful and hopeful. How often have we seen a person about to be anesthetized brought before a class and all the harrowing details of the case discussed by the surgeon in charge with perhaps a prognosis that is calculating and problematical. When we consider the fact that there is within us a psychic force that operates so strongly for good or ill, it is little to be wondered that in cases like this the patient suffers shock or even death.

Now I approach a field where suggestion has its greatest usefulness. I approach it with more or less fear and trembling, for I realize that there are so many ideas and methods extant regarding the cure of alcoholism. There are many lines of treatment for this deplorable habit. The moralist and reformer appeal to the patient's manhood. The whiskey-cure institutions use vaunted specifics and tonics which operate mainly through the mind. Plain quacks and charlatans use any old thing or method they find expedient and best calculated to divorce the victim from his money. The ideas I give will, I think, appeal to the conservatism and common sense of every medical man.

Alcoholics may be put into two classes. One of these drink because they like it and want to do so, and they drink more or less regularly. The other class drink because they claim they can't help it and go on occasional sprees, every few weeks or months. The latter are dignified with the term "dipsomania." A dipsomaniac is usually a man of some ability and character, but in his ancestry can always be found a history of neurotic troubles. Both classes invariably lay the blame to heredity, back, if necessary, to the third or fourth generation. We can all trace back our family tree and find some neuroses or deviltry of some sort. It is the first duty of the physician to eradicate the idea that heredity, per se, has anything to do with the drink habit. We are all inclined to be

"leaners." We invent excuses for our faults and frailties.

The drinking man, whether he be a plain drunkard or a dipsomaniac, thinks more of himself than he does of his family or society, and with very few the setting up of ideals in the abstract leaves no lasting impress. He may attend a temperance lecture and make good resolves. He may be momentarily penitent while at the theatre hearing melancholy songs of "home and mother." Too often these things make him introspective and despondent and in a mood to drown his sorrows or himself. The ideals which appeal to the drinking man must be in the concrete. He must have something tangible to take the place of drink, something also to which he can anchor his faith in order to have confidence in himself. Lecturing seldom helps him. It may drive him to suicide. His physical and mental desires of a legitimate kind must be appeased. He must be made to feel that he is not being bereft of any comforts. His environment must be made conducive. His mind must be impressed with the importance of shunning drinking places and convivial friends as he would lepers.

The desire for drink may have its origin either as a physical or psychic impulse. If the former there is usually a gnawing at the pit of the stomach. A good meal may offset the desire. A copious drink of water may be efficacious. A system of breathing and exercises may be of untold value. When the drink desire arises from despondency a visit to the theatre or other amusement, or a visit to some congenial friend or family, may dispel the desire.

If he is suggestible these ideas, or those which appeal most strongly to his individual case, will make an impression upon him and, if he really has the desire to quit, will aid him materially in gaining a mastery over himself. If the hypnosis can be made sufficiently profound a post-hypnotic suggestion may be given to become operative days or weeks after. Under proper conditions the mystery of the post-suggestion never fails to assert itself. He may be told that whenever the desire to drink occurs, if at all, he will at once return to you for treatment, but that he will not know why he does so. It is hard to understand the why and how of these post-hypnotic manifestations, but that they occur can not be denied. If we get the patient to return he can be bridged over another proposed spree. Every desire thus aborted enables him to gain strength and confidence within himself.

There are many, however, who do not lend themselves gracefully to treatment under hypnosis proper. Suggestion then may be carried out in some other form. When the patient applies for treatment inject sufficient apomorphine—usually 1-10 or 1-8 grain—to produce emesis and encourage him to take at once a drink of whiskey. It need not be a maximum drink. Should you simply make him sick without some indulgence on his part might be to lose his confidence. It is perhaps best to turn quack for the time being and heighten the suggestion by impressing him with the idea that you have a specific remedy. The nausea and vomiting associated with your suggestions will for days make a saloon as repulsive to him as a glue factory. Subsequent injections should be plain water unless when there is a desire for drink. Then the apo should again do service. I do not believe tonics are indicated. The patient should be well nourished. Perhaps a little hyoscine as a sleep-producer may be at times useful. On the whole, the treatment is or should be along the line of psychotherapy. The suggestions first mentioned should be applied in a way best suited to the patient's personal equation. He must understand that he is not being deprived of any real comforts or diversions. With treatment pursued along these lines any physician can successfully treat these cases. Many cases can not be cured because there is no real desire on their part to be cured. An honest, earnest desire is the first desideratum.

THE VALUE OF VARIOUS NEW FORMS OF TREATMENT.

BY A. R. WILLIAMSON, M.D.

PART I.

NO condition is more difficult to treat than aneurism, hence all that is suggested on this topic deserves attention. Much attention has been paid in recent years to injections of gelatin. As a result the tumor becomes firmer, and the expansibility lessened, while there is diminution in the amount of pain, pressure symptoms become ameliorated, and the patient breathes more easily, but unfortunately great pain is often complained of in the region of the injections. Care must be taken to secure absolute sterility of the gelatin, for that substance is a good medium for the development of micro-organisms. Where a post mortem examination has been made large organized clots have been found filling the cavity of the aneurism, ascribed in a great measure to the action of the gelatin. This method has not been used much in America, and in Germany the procedure has been criticized. For example: Freudweiler believes that injections of gelatin are not so free from danger as is generally supposed, being followed by the occurrence of boils, and by the production of thrombi in undesirable position, as the carotid arteries. He reports two cases where the gelatin aggravated hæmorrhagic nephritis, for cure of which it is given. The urine became smoky, and contained numerous red corpuscles and a quantity of brown detritus, while the quantity of albumin steadily increased. Though the hæmaturia and the hæmoglobinuria gradually disappeared, the quantity of albumin remained double the amount it was before the injections were tried. In the second case the injection was followed by an intense hæmaturia and hæmoglobinuria, with an increase in the albuminuria; eight days later the urine had returned to the condition in which it was before the injection and no permanent damage was noted. Consequently, diseased kidneys are an absolute contraindication to the employment of gelatin as a hæmostatic.

Gelatin injections have been used with success in purpura hæmorrhagica: thus, Theresi injected a solution of gelatin, 30 per cent filtered into a receptacle, and kept at 100° C. One centigramme of carbolic acid is then added to each cubic centimetre of the solution, and 3 centimetres injected with a hypodermic syringe into the gluteal region. After three days the hæmorrhages in the gums and in the skin began to diminish, disappearing completely in nine days; the injections were given two or three times a day. In

entercolitis Theresi used enemas daily containing a 5 per cent. gelatin solution, and, in addition, the intramuscular injections were tried. Improvement appeared on the second day, and on the twelfth day the patient was cured. In such cases Theresi believes solutions of gelatin are absorbed by the blood increasing its coagulability.

The use of commercial glucose has been recommended as a food in convalescence from acute diseases. This substance consists approximately of dextrin, 25 per cent.; maltose, 20 per cent.; dextrose, 40 per cent. x.; water, 15 per cent. In phthisis, and in the treatment of ill-nourished infants, Murrell gives 2 drachms three times a day, although more may be given. For children it is better given by itself; for adults it is conveniently administered in a cup of black coffee or similar menstruum. The urine of patients taking glucose is not reduced by Fehling's solution, which shows that it is entirely absorbed, and is not eliminated by the kidneys. Two of its constituents, maltose and dextrose, are sugars, and are of the greatest possible value in the animal economy, while the third, dextrin, is half-way between starch and sugar, and as soon as it comes in contact with the saliva and the secretions of the pancreas and intestines, is converted into sugar. Should an infinitesimal portion escape conversion by the secretions of the mouth and pancreas, physiologists are now agreed that any remnants of dextrin not so acted on are absorbed by the cells which line the intestines, and are by them converted into maltose and dextrose before being turned into the blood stream, so that glucose is a valuable nutritious agent, comprising all the best qualities of the carbohydrates, according to this authority.

While investigators have been studying the question of preservatives of food in America, England has not been idle. The Departmental Committee gave the following conclusions:

(1) That the use of formaldehyde or formalin, or preparations thereof, in food or drinks, be absolutely prohibited, and that salicylic acid be not used in a greater proportion than 1 grain per pint in liquid food, and 1 grain per pound in solid food. Its presence in all cases to be declared. (2) That the use of any preservative or coloring matter whatever, in milk offered for sale in the United Kingdom, be constituted an offence under the Sale of Food and Drugs Acts. (3) That the only preservative which it shall be lawful to use in cream be boric acid, or mixtures of boric acid and borax, and in amount not exceeding 0.25 per cent. expressed as boric acid. The amount of such preservative to be notified by a label on the vessel. (4) That the only preservative permitted to be used in butter and margarine, be boric acid, or mixtures of boric acid and borax, to be used in proportion not exceeding 0.5 per cent. expressed as boric acid. (5) That in the case of all dietetic preparations intended for the use of invalids or infants, chemical preservatives of all kinds be prohibited. (6) That the use of copper in the so-called greening of preserved foods be prohibited. (7) That means be provided, either by the establishment of a separate court of reference, or by the imposition of more direct obligation on the Local Government Board, to exercise supervision over the use of preservatives and coloring matters in foods, and to prepare schedules of such as may be considered inimical to the public health.

Tunnicliffe objected to paragraph 6 on the ground that the copper is relatively insoluble and an unabsorbable combination with vegetables, and that, therefore there is no injury to the consumer, not to mention the minute traces only consumed, which is a rather novel view, and not easily accepted by the profession or laity.

The question whether typhoid fever may not be a "dust borne" fever has been agitating the surgeons in the English army for years, and the late Boer war has brought forward the subject again. Statistics are accumulating to show that it is not entirely a water carried disease, but may be spread in other methods. Firth and Horrocks, of the Netley Hospital, which has done fine work, and the Army Medical Department, have published important experiments, from which they draw the following conclusions: (1) The germ of typhoid, when placed in soil, does not appear to grow, but can be washed by water through at least eighteen inches of soil. (2) The germ is able to assume a vegetative or saprophytic existence in ordinary and sewage polluted soil, and survive therein as long as seventy-four days—the nature of the soil not being important, organically polluted, virgin, receiving dilute sewage or rain-water, but the presence of water prolonging the period of infection. Typhoid polluted soil (when dry) may be the means of spreading the disease by being blown about as dust by winds and air currents, dust storms in South Africa. (4) The germs can be carried by house flies (heads, legs, wings, or bodies). (5) Typhoid infected khaki drill or serge, blue serge, etc., when dried may retain active infection for upwards of seventy days. (6) The germs, though exposed to direct sunlight, in surface sail may survive as long as 122 hours, or even for twenty-one consecutive days' intermittent exposure. (7) The germs are not destroyed by any biological process, nor are they retained in the ærobic filters, so that an effluent from a septic tank, or biological filter, may prove a danger to health by the presence therein of actual typhoid germs, if allowed to pass into a drinking water supply, unless such drinking supply is subjected afterwards to careful sand filtration on a large scale.

Rheumatic manifestations in childhood are enumerated by E. J. McDonough (*N. Y. Med. Jour.*, Feb. 7, '06). Tonsilitis, chorea, growing pains, pleuritic pains, endocarditis, torticollis, fibrous nodules and anemia are mentioned. At to treatment: Flannels should be worn the year round; the anæmic should have iron and cod liver oil; salophen for some time after the attack; restrict starches and sugars; immediate treatment when symptoms appear, especially if there is a rheumatic diathesis; sodium salicylate during acute attacks, wrapping the joints in cotton, or splinting if necessary. Tonsils and adenoids should be removed, as the infecting material commonly enter the system by this route. (We subscribe to this statement, except that healthy tonsils should remain. Such tonsils are safeguards against infection. Germs certainly traverse diseased or unhealthy tonsils, which should therefore either be removed or undergo treatment.)

TREATMENT OF HEMORRHAGE FROM THE GENITO-URINARY TRACT.

BY CLARENCE G. CLARK, M.D.,
Former Assistant Surgeon of the New York Hospital Out-Patient Dept.

BLEEDING from the genito-urinary tract occurs from a variety of causes and in many instances is mild and requires very little treatment. In other cases it is most profuse. Some of the causes of profuse hæmorrhage that may be mentioned are stone in the bladder, bladder tumors, acute cystitis, acute prostatitis, and in a great many cases following the passage of sounds and catheters upon patients suffering from strictures. Very often the internal cutting of a stricture is followed by a well-nigh uncontrollable hæmorrhage. This is especially true when the operation is performed upon bleeders or persons whose urethræ are in a state of congestion.

The treatment of these cases has always been difficult on account of the hindrances in reaching the bleeding surface with local treatment and the lack of hæmostatics unirritating enough not to do more damage than good. The administration of ergotin by the mouth or hypodermically has never met with success in my hands. Whether this was because its action was too slow or not, I do not know; not even in those chronic cases due to cystitis and bladder stone where the blood appears in the urine. I have never seen much diminution in the quantity of blood after administering ergot even in large doses; and, of course, the first thing to do in cases of hæmaturia is to remove the cause if possible; but there are many cases where a control of the hæmorrhage is necessary or at least advisable; and especially does this apply to those severe cases following instrumentation.

For this purpose I have been using the phtalate of Cotarnine for the past year with the most excellent results. In urethral hæmorrhage following the dilatation or the cutting of a stricture, the deep injection of ½ oz. to 1 oz. of a 2 per cent. solution is admirable in its effect, even exceeding the use of adrenalin solutions and without any of the toxic effects of adrenalin. My attention was first called to it when I was removing some nasty vegetations from the glans and the operation was followed by profuse bleeding, as is often the case. Happening to have a bottle of the powder within reach I applied some to the bleeding surface and was surprised at the rapidity with which the hæmorrhage was stopped; and my after experience has been fully as satisfactory, especially in cases where the bleeding surface could be reached with the solution. In bladder cases I have never been very successful in the local treatment by injections, but have had marked results from the internal administration of phtalate of cotarnine tablets in ¾ gr. doses every 3-4 hours. The following cases will better illustrate the effects of this hæmostatic. They have been selected as representing the different forms of hæmorrhage to which the genito-urinary tract is subject:

Case 1.—Mr. A. R. Aet. 30. This was a case of stricture following a chronic gonorrhea. The stricture was very narrow and an opening had to be found with filiform bougies. Whether it was the manipulation or whether there was some hæmophilic tendency, I do not know; but following the withdrawal of the sound, which was introduced along the filiform bougie, a profuse hæmorrhage appeared. This persisted for about ten minutes before I decided it advisable to interfere. Injected through a Keyes Ultzmann syringe 2 drams of a 2 per cent. solution of phtalate of cotarnine. The effect was very rapid, the hæmorrhage subsiding at once and stopping within five minutes. I have used cotarnine phtalate in three or four similar cases following instrumentation with similar results, and I make it a routine procedure to inject 1 dram of 2 per cent solution after every internal cutting of strictures, with the result that I have rarely much hæmorrhage.

Case 2.—Mr. W. C. This patient gives no history of venereal disease. Blood first appeared in his urine after some exceptionally heavy exertion. It was not profuse and appeared in the form of clots. He was also constipated. Treatment consisted of daily doses of salines together with alkaline diuretics and ¾ gr. of phtalate of cotarnine every 4 hours. Improvement was rapid, and I credited this case to cotarnine rather than to the alkaline treatment, because the patient had previously consulted other physicians who had treated him with ergot and alkalines without improvement. He has had no recurrence of the hæmaturia.

Case 3.—Mr. A. F. Has acute attack of gonorrhea about three weeks in duration. Has been treated by injections and irrigation. About three days ago began to have severe pain over the pubes and to notice blood in his urine. This pain has increased and he urinates very frequently and passes blood every time. Prostate is very sensitive and it was noticed that after a gentle massage of the same, the quantity of blood in the urine, passed immediately after, was increased. Diag.—Cystitis and acute congestion of the prostate and neck of bladder.

Treatment: Washed out the bladder with warm boracic acid and instillated about 10 drops of 5 per cent. phtalate of cotarnine solution into the prostatic urethra. This appeared to have a sedative action as he ceased to urinate so freely. After continuing this treatment for a week the blood had disappeared and the frequency of urination was much improved. The cotarnine was stopped then without a recurrence of symptoms and case was cured in three-four weeks by continued bladder washing with a 1-2000 permanganate solution.

These three cases will represent the benefit derived from the use of this salt of cotarnine in cases of bleeding from the male genito-urinary tract. I have also used the hydrochlorate of cotarnine, but I do not think it is quite as effective as the phtalate. Phtalic acid is itself a styptic and its combination with cotarnine gives us two powerful hæmastatics. I have never observed any deleterious effects from the use of phtalate of cotarnine, although I have used large doses.

False teeth will not be needed by the German children when they reach maturity, if the free care of children's teeth continues to grow in popularity. Strasburg reports 12,691 visits to its clinic last year and other cities have had proportionate attendances. It is reported that the children are improving in the care they give their teeth. It is a part of the work of the Medical School Inspectors in New York City to examine the teeth of the children, and to enter dental caries upon cards referred to family physicians.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, APRIL, 1906

Man's culture can spare nothing, wants all the material. He is to convert all impediments into instruments, all enemies into power.—*Emerson.*

IMMUNITY.

IT is very rarely that the liberal-minded and careful student of clinical medicine fails to find a mutual corroboration between his own empiric observations and the deductions of competent students of strictly scientific problems of medicine. At the risk of being considered too conservative, we venture to point out that, in comparison with its extensive literature and prolix vocabulary, the modern theory of immunity has not supplied a commensurate amount of practical results.

Immunization as an expression of cellular chemistry, the interaction of invading cells, has achieved positive results only in the case of variola, diphtheria and malignant œdema and, statistically, in the case of typhoid fever, possibly plague, and certain animal infections not shared by man. The relative mortality of immunization against malignant œdema, while not invalidating its economic status, prevents its extension to human disease. To this list, may perhaps be added immunization in the treatment of certain snake bites, notably of the cobra and the more or less exaggerated and unconfirmed results of a favorable nature reported for a host of diseases.

Specific immunization against variola was placed on a practical basis by Jenner, a clinician, a century before the modern study of immunization in general. While this modern study has, in many ways, explained the effect of vaccination, as that of an established, dwarfed disease, it has also pretty positively demonstrated that a definitely mitigated infection, of protecting power against the typic unmitigated disease, cannot be obtained by passing the germ, by purposive innoculation or accidentally, through a lower animal, excepting in a very few instances. No other analogous disease is known and such an analogy is possible only in the case of diseases having a germ that passes through various phases of existence. A true vaccination againt bacterial diseases is impossible and we may hope for it only in the case of measles, varicella, rötheln, scarlatina and, perhaps, a few other diseases whose germs are probably of animal nature and for which a dwarfed, or mitigated, animal disease may exist. Curiously enough, the definite conception of this limitation, and of the distinction between vaccination against smallpox and inoculation against bacterial diseases, seems to have escaped most of the students of immunity.

In some diseases, notably tuberculosis, an immunization has been claimed as the result of animal and test-tube experiments, but it is not on a practical basis and the crude fact that such diseases do not tend to immunize spontaneously against themselves, renders it improbable that anything of a practical, prophylactic or therapeutic value, will ever be achieved.

Serum reactions have been used to demonstrate pregnancy, though such experiments are not yet conclusive and it has even been seriously proposed to immunize against fatigue and old age, which are usually considered inevitable.

In all fairness, it should be admitted that it is far too early to judge of the practical possibilities of artificial immunity in the light of the very brief opportunity as yet afforded for developing a technical method. The principal criticism which is justified at present, is the extremely liberal interpretation of the right to formulate working hypotheses and to give technical names to ideas scarcely proved even in a probable sense, and to draw conclusions from rather dubious reactions of a delicate nature in vitro or in animals subjected to experiment in which extraneous and, perhaps, very simple circumstances, may explain results attributed to specific reactions.

The facility with which new terms and new working hypotheses have been formulated in studies upon immunization, is rather surprising, and is somewhat too sugestive of the manner in which certain financiers have avoided practical difficulties by hypothecating securities of very insecure nature. Occasionally, different investigators have complicated the difficulties of following their studies, by coining different Greek terms. Sometimes, the same difficulty has been met by two or more working hypotheses, each with its complement of new terms, at various stages of the hypothetic process. The medical profession is hard-headed and would be better pleased if actual difficulties were not met so promptly and plausibly, with second and third mortgages and promissory notes drawn upon future discoveries.

By sad experience, we have learned that very few working hypotheses are ever advanced to the state of generally accepted theory, and that comparatively few theories are demonstrated to be facts. It is almost certain that, within a few years, much that has been hypothecated by students of immunity, will be disproved and the busy practitioner of medicine, however optimistic and inclined to inform himself as to scientific progress, hesitates to load his mind with technical terms whose meaning will probably be demonstrated to be based upon misconception. Meantime, the freedom with which new hypotheses and new words are being advanced, distinctly hampers the acceptance by the general medical profession of even that portion of the study which has reached a fairly stable basis.

CONCENTRATION OF EFFORT IN MEDICAL ASSOCIATIONS.

THE recently accomplished reunion of the profession in this state, has a significance, both local and national. Curiously enough, this significance is almost entirely independent of the issues that led to the withdrawal of the State Society from the affiliation with the American Medical Association. Even at the beginning of this rupture, it is doubtful whether the nominal cause represented a general and vital difference of opinion in the medical profession, while, for many years before the hard-fought reunion was accomplished, the two great state organizations existed side by side as a triumphant exhibition of medical political effort.

Thus, the fact that the state medical profession is now reunited, does not signifiy that one side has converted the other or that either has compromsied its essential principles. The conversion has been, in both parties, to the idea of strength and economy of effort in union and whatever compromises have been needed have been with regard to technicalities rather than principles.

While, in a sense, the State Society may be considered to have been victorious, in retaining its name and antiquity of existence, the Association has triumphed in so far as details of organization and economic factors in medical organization are concerned. Indeed, this triumph was conceded before the union was consummated. While the method of election to the State Society had and still has its ardent supporters, against the theory of making every member of a county society, ipso facto, a member of the state and national organization, the theory that a state organization should concern itself with the economic problems of professional life and not merely with scientific discussions and the legal status of the profession, had gained wide support and unquestionably, this theory would have been put into practice, even if the reconciliation had not been effected.

The same theory now has a possible field of application in the county and district branches of the State Society. In the counties of comparatively small population the corresponding Society or Association, has usually been the only prominent medical organization for scientific discussion, while in counties containing large cities, the county organization has existed largely for business purposes and, in some instances, the medical programs presented have been distinctly mediocre or, at least, have been regarded as inferior in importance to the business session and inferior as compared with the work of local academies.

As a logical corrolary of the triumph of medical union in state and county organizations, the question now comes up whether it would not be wise to merge the larger local scientific societies with the corresponding county societies. The field of private clubs for medical study or for social purposes, is quite distinct. So, too, it is obvious that county societies should not meet too frequently for purely business transactions. But, the advantage or unity and economy of effort are so great that it is worth our while to consider seriously the advisability of converting the larger local scientific societies into sections of the county societies.

THE DEATH RATTLE.

POPULAR fiction, and especially the stimulating kind written for boys, has familiarized us with the death rattle as an infallible warning of approaching dissolution. We must confess that, in the first year or so of medical practice, we were somewhat surprised to find that there was no such harsh, rattling sound produced in the throat of dying persons, as we had previously imagined. It was an even greater surprise, in fact a distinct disappointment, with increasing experience, to be compelled to admit an inability to distinguish any sound in the throat as necessarily indicating approaching death.

As we understand the matter, the basis for the belief in a death-rattle, is twofold. In many diseases, there is either an actual paralysis or, at least, paresis, of the pharyngeal and faucial muscles or else a functional weakness, which results in a form of snoring. Personally, we have not been able to differentiate this sound from that common during sleep or anæsthesia. Secondly, in many other diseases, there is an accumulation of mucus, serous exudate or other fluid in the trachea, larynx and pharynx, so that respiration produces bubbling or finer rales. These two factors may also be combined to produce a death rattle. But, so far as we have been able to observe, neither

factor nor both combined are at all characteristic of approaching death, so that the "death rattle" itself is not a prognostic sign, although, obviously, there are many cases in which from other conditions, we can quite positively prognose impending death and thus, correctly, designate the snore or respiratory bubbling as a death rattle.

In many cases in which death has been rather sudden at the end, we have failed to note anything that could be designated, even by the most imaginative, as a death rattle, and it is doubtful whether healthy soldiers, meeting sudden death or even death from wounds deferred several hours, would manifest this phenomenon so regularly as fiction writers have implied.

This subject is not without its practical value, especially if the conception of the laity is correct. Even the physician with a large practice does not actually witness the death scene very frequently and, when he does, his attention is likely to be diverted from an accurate study of terminal symptoms. We would, therefore, suggest that members of the profession who have had extensive military experience or who have happened to observe numerous cases of death from accident, especially at one time, or who have given attention to this phenomenon in medical practice, should report their observations. In the first place, it would be a matter of scientific interest to know just what classes of cases are liable to develop a death rattle and what are liable to be free from it and, in the second place, if there is any characteristic which is peculiar to impending death, its exact description and phonographic reproduction would be of value prognostically.

NEW YORK CITY'S LOW DEATH RATE.

IT is a memorable observation concerning great cities that they would become quite depopulated within three generations were it not for the constant influx of healthier stock from the rural districts. Captain Graunt, the founder of the science of population statistics, found more than two hundred years ago that burials were far more numerous than christenings in the London of his day, and concluded that the growth of that metropolis was due to the coming in of "people from out of the country." Other students of this subject have held that life in cities invariably exhausts the vital energies so that in the course of time the essentially urban stock degenerates both physically and mentally, giving way to the more robust country born element and ceasing eventually to reproduce itself. Sanitation in cities has, however, become mightily improved since Graunt's time. Still the preponderance of deaths over births in them has generally demonstrated the greater healthfulness of rural districts and that urban populations would be unable to perpetuate themselves indefinitely were it not for accretions from this source.

In the light of these statements the death-rate of New York City for the year 1905 is certainly encouraging to the friends of healthy urban development. It was the lowest in the city's history and but slightly higher than in the rural districts. In 1890 it was 26.7 per 1,000; in 1900 it was 21.3; in 1905 it was only 18.7. When one compares these figures with those of the census for the eight States in which deaths were registered during the above-mentioned years the showing is quite favorable. Throughout the registration erea the death-rate in cities fell from 21.0 to 18.6, a decrease of 2.4 as against 5.4 in New York up to 1900. In that year the rural death-rate in the registration area was 15.4, the city rate 18.6, and the New York rate 21.3.

Except for unwholesome or dangerous occupations there seems to be no very good reason why mortality should be higher in cities than in the country. The enactment of the Tenement House Law of 1901 was a most important sanitary measure for New York City; and its courageous and firm enforcement by Mr. de Forest, Mr. Veiller and their able associates, are matters that have received much too little appreciation. The work of the Health Department has also been enormous and most salutary, as instance its supervision of the city's meat and milk supply, and its inspection of public school children. Witness also the exclusion of child labor from factories (a most brutal and heartless stigma upon civilization), provision for public parks, recreation piers, baths, and school playgrounds. To such improvements as these will soon be added the opening of new and extensive rapid transit, by means of which the population may become more distributed over the suburbs in the city's boroughs beyond Manhattan Island.

Anthracosis and pulmonary tuberculosis are considered by J. M. Wainwright and H. J. Nichols with regard to the frequently mentioned theory that anthracotic lungs are less susceptible to tuberculosis than normal lungs, and that this unsusceptibility is due to the germicidal action of the coal dust. These writers have found that coal dust has no germicidal action, however. It has also been suggested that the rarity of tuberculosis among miners depends upon the fact that the air in mines is comparatively bacteria-free. Moreover, because of the moisture of the atmosphere (often to the saturation point), the sputum cannot dry and be breathed in as dust. These factors have, no doubt, some effect in diminishing tuberculosis. In addition, Wainwright and Nichols believe that the coal dust in the lungs does exert a true protective influence against the tubercle bacilli and that this is brought about by the stimulating effect of the coal-dust upon connective tissue growth.

CHRISTIAN SCIENCE PRACTITIONERS

THE time has passed for any especial criticism of the Christian Science cult. There have been published from time to time a number of excellent analyses of this phase of modern thought. Probably all criticisms on either side are wasted time and paper, for no one is convicted to Christian Science or against it by arguments. The people who accept and practice it are as a rule impervious to any statements, no matter how strong or emphatic. They have a strain of mysticism in their compositions, and if "Mother" Eddy had not lived or wrote they would be Faith Curists, Spiritualists, Dowieites, Shakers, etc., according to the latest phase or craze. The practicing physician can console himself as to loss of practice among these people: they are rarely patients of regular practitioners.

The point which we wish to emphasize is that Christian Science is peculiarly feminine in its fascinations. Possibly it is because of "Mother" Eddy, or owing to the "father and mother God" of her prayers, or because women are more mystic in their nature. In fact, there is a strong tendency among many Christian Scientists to recognize Mother Eddy as the Shakers recognize Ann Lee, as the female embodiment of Christ. This point is further emphasized by perusal of the principal Christian Science magazine published by the "mother" church in Boston. Everything in this religio-medical cult is "mother"; it is particularly true as the song says, "Everybody Works but Father." This paper contains the advertisements of practitioners in good standing throughout the world and may be accepted as reliable—as the cult are principally women, so the practitioners are largely women. This condition is not confined to one State, but is as true of Maine as of Arizona; in Alabama as in Idaho. Again these practitioners are confined principally to the largest cities; thus Chicago is the hotbed of the cult, having a very large proportion of the entire number. In Alabama there are eight advertising practitioners, all women; nine live in Arkansas, all women but one. In Arizona are seven women working for the cause with not one man in the territory to charm away sorrow or error. No wonder Congess rejected this community as unfit to be a State. Science seems to be very thriving in California if the number of practitioners is any index. There are one hundred and ninety-five women and twenty-five men practicing in that State, a large proportion being in Los Angeles. This is probably due to the fact that that town is filled with rich people more or less ill with plenty of time on their hands. So it is in Colorado; here the thrifty Scientists are gathered together to the number of ninety-six women and seven men, busy with their little books.

Connecticut is not so fallow a field, for only twenty-eight women and five men keep up the good work here. Long experience with wooden nutmegs and other deceptive articles likely to shake faith in human nature have probably caused the people of this State to cut their eye-teeth. A curious state of affairs exists in Delaware, for there are as many men as women Scientists here, although only two of each; still Delaware is small and very busy in politics. To care for President Roosevelt and the wicked band gathered in our national capitol there are only twenty devoted women and three solitary men. Truly the task here is unequal; but it is worse in Florida, for only one man stands for the State's honor with thirteen ladies, an unlucky number.

Georgia is no better, with only two men to twenty women. Matters are also at a low ebb in Mississippi, for no men are working here and only two women. In fact Southerners do not seem to take kindly to Christian Science; probably an undue prejudice for whiskey and quinine for all ailments has crowded out the gentle theories of "Mother" Eddy.

The town of Chicago is apparently the home of Christian Science; there are nearly four hundred lady practitioners here in packing town, despite which fact we have such novels as "The Jungle" hot from the press. New York and Philadelphia are far behind in the rate. No doubt that famous low death-rate is due to this fact; the mystery at last is solved—right under the eyes of the home of the American Medical Association do these undaunted ladies flourish, undisturbed by thoughts of ethical preparations, for to their clear vision all preparations are non-ethical. They have no star but the north star of *Science and Health*, and they sail triumphantly over the rocks and shallows that are wrecking their medical brethren. Their coin comes from an easy mint.

Idaho again has no male practitioner and only nine women; cowboys and miners do not seem to have illnesses of the Christian Science kind. So with the Indians—four women are enough for the Indian Territory without male assistance of any sort except in the payment of bills. Curiously Maryland is no more civilized: Professors Osler and Welch have no male competitors in the entire State and only a devoted band of fourteen ladies. Thus the story goes through all the States, while abroad the fad seems to have only a slight hold if advertisements are any index.

NAVY SURGEONS

IT is reported that the United States Navy is so short of assistant surgeons that it has finally decided to offer special inducements to young physicians. It is not easy to understand why there should be a deficiency in this respect; the Army and

Navy service should be attractive to young physicians. The government has expected the very best grade of professional equipment; the examinations have been very exacting and the percentage of successful applicants has been very small. Yet our authorities seem, until recently, almost to have taken pains to make the service unattractive to young medical men. Their rank has been insignificant. They have lived a hand to mouth existence. Their expenses have been great, especially for required uniforms. They have not even had cabins of their own. Those who were students would have to plug away at their books in the mess room, with a hundred things to annoy and disturb them. Whenever men have been allotted to assist them, the most worthless among privates would be assigned to such work; and the "Hospital Corpse" (standing military joke) has generally been made up of the poorest material to be found. The surgeons are somehow not looked upon as fighting men; whereas they are often, in times of actual warfare, called upon for acts of supremest courage. Especially is this so in Indian fighting. Possibly their very mental gifts make them unpopular with their brother-officers; for it is a matter notorious that the intellectual quality of the average mess is of a very low order indeed. Beyond a few questionable, prurient and venerable stories the conversation in these circles is like a stagnant and muddy pool and woe be to him who would seek to contribute any clarifying sentiments. We have read how Commander Winslow, for instance, was tabooed in the mess for no other reason than that he was a reader and a thinker, capable of expressing thoughts worth hearing, but which were, however, very disturbing to minds rendered comfortably lethargic by means of much tobacco smoke and innumerable highballs.

Whatever the reasons are, the medical service in our Army and Navy has not of late been attractive; nor does our country seem to differ from others in this respect. Only in Japan do the military physicians seem to enjoy a right and really honorable position, in which the government's consideration for them has been thoroughly warranted by their truly magnificent achievements in the recent war. Baron Tanaki must have made American officers gasp at his presumption when he declared that the surgeon of highest rank should equal the Lieutenant-General or the chief Admiral. Yet to hold any other view is essentially preposterous.

Now, however, measures are taking to attract the young physician. Four new examining boards are to be established in Boston, San Francisco, Philadelphia and in the Brooklyn Navy Yard; these will supplement the work of the principal boards at Washington, which has hitherto given all the examinations.

The navy is thirty surgeons short of its full complement; fourteen short of assistant surgeons and twenty-five of "contract" or acting assistant surgeons. Four-fifths of all in the active service are now at sea. No ship is permitted to leave port without its full complement of surgeons; wherefore the shore stations are now most lacking in physicians. An assistant surgeon's rank has been made that of a junior lieutenant, which is equivalent to first lieutenant cavalry in the army. This is a rank which it takes a middy nine years to reach.

The "contract" surgeon serves three years. He has the same rank (known, however, as "assimilated rank") as the full assistant surgeon, with the same pay; and if he passes the final examination at the end of three years he becomes a full assistant himself, and in line for promotion.

When the candidate has passed the qualifying examination before the nearest examining board he is set to work at once, wherever he may be, and then in the spring he goes to the Naval Military College at Washington, where he gets a six months' course while drawing full pay. He then takes another examination before the regular board, and upon passing gets a commission as assistant surgeon. If he fails to pass he may still keep his contract and serve until the end of three years, drawing regular pay as before. The "contracts" are not required to get the full uniform outfit, which costs between six and eight hundred dollars.

HOPE FOR CANCER PATIENTS.

UP to recent years we have been looking upon tuberculosis as the most dire of all diseases. We have now, however, made so great advances in its cure that it is coming to lose its unenviable position as the Captain of the Men of Death, to which John Bunyan long ago assigned it. The terrors connoted in this title are coming to be transferred to cancer. And true it is that of all diseases none is to-day so dreadful, at least in its inoperable form—considering how helpless the physician has been concerning it, how much suffering it visits upon the victim, how appalling it is to his familiars. But one other disease—thoracic aneurism—equals it in the blank despair which must be endured and the certainty of a pitiful and impending death which must be anticipated. One welcomes, therefore, every advance in the study of cancer, especially of its therapeusis.

The work of Dr. Beard and Dr. Bashford inspires hope of cure—we dare not say to what degree. The former has found in trypsin a substance which, it is declared, will, without danger to the sufferer, destroy the cancer cell. Trypsin is the characteristic pancreatic ferment; and it is a much more powerful digestive agent than the peptic juices of the stomach. It prob-

ably digests and eliminates the "trophoblasts," the cells which tend to develop into malignant tumors. It is indeed announced that "in trypsin has been discovered for the cancer cell, that spacific poison which must exist for every cell."

Mice are of all animals the most available for the transference of cancer cells from one individual to another. The "Jensen tumor" is growing to-day with undiminished energy, four years after the death of the mouse in which it arose, almost three thousand of the animals having been successively affected. A number of mice were inoculated by Beard with the cells from this tumor, and five weeks later he subjected some of these creatures to trypsin injections. One, which had received nine injections, was killed after three weeks, in order to compare it with one of the untreated mice that died. In the latter the fatal tumor had reached the size of the last segment of a man's thumb, while the trypsin mouse had a tumor the size of a lentil, and all its cells were dead.

Bashford has shown that the microscopic lesions characteristic of cancer throughout the vertebrates are identical with the disease in man. Wherefore it would seem that one might assume that the trypsin treatment would have the same results in the human being as in mice. Shaw-Mackenzie has indeed already administered trypsin both by mouth and by the hypodermatic needle, upon an operated case in the hope of preventing a return of the cancer, and apparently with success.

Another phase of the subject has been presented in the report of the Imperial Cancer Research Fund, in which it is declared that this disease is *not* infectious. This should allay quite natural fears among many, particularly those to whose care cancer patients have been entrusted.

Chronic Arterial Hypertension.—Marked and lasting elevation of blood pressure indicates serious disturbance in the organism. To the arterial factor which here obtains T. C. Janeway has given the above title in a valuable paper recently read before the New York Academy of Medicine, on "The Diagnostic Significance of Persistent High Arterial Pressure."

Real hypertension is most common in chronic nephritis. Some, indeed, have considered this sign sufficiently pathognomonic of the contracted kidneys, though all other confirmatory evidence be absent. Janeway would not take this extreme view, but maintains very well that the diagnosis of this disease would be greatly simplified by the use of the sphygmomanometer. He based the study which he presented upon a systolic pressure equaling 200 mm. or over, for the reason that at lower scales than this his findings were complicated by various factors which tended to invalidate scientific conclusions. He postulated the existence of a chronic nephritis where either polyuria, a low specific gravity, or albumen, or casts were present at any examination. Cases which showed a urine negative in all these respects on several examinations at different times he considered to be without evidence of nephritis. Cases with normal urine on a single examination, in which no more evidence was obtainable, he classed as doubtful. Upon this basis he found the following relations: Among 130 cases in which the systolic pressure reached 200 mm. or over, 105 had chronic nephritis, 8 were doubtful, and 17 showed no evidence of this disease; among 59 cases in which the systolic pressure reached 230 mm. or over, 53 were nephritic, 3 were doubtful and 3 showed no evidence; among 25 cases in which 250 mm. or over was reached, 23 were nephritic and 2 showed no evidence; among 11 cases in which 260 mm. or over was reached 10 were nephritic; in all of 28 cases in which the systolic pressure reached from 270 up to 310 mm. there was chronic nephritis.

Evidently, then, an examination of hypertension is of valuable diagnostic significance with regard to chronic Bright's, a disease than which there is perhaps no one more serious and concerning which we have none too many positive signs. Janeway's figures show, moreover (in nearly 15 per cent. of his cases), extreme high blood pressure with cardiac hypertrophy, arterial changes and quite the same clinical picture, existing independently of Bright's disease. "Their exact relation to cases of nephritic hypertension must remain in doubt until our knowledge of the causes of the latter is more complete." The practical point with regard to this hypertension is that from it arises many dangers to which the patient is subject, be he nephritic or not—dangers which may be anticipated by intelligent foresight.

The sphygmomanometer should become a part of the physician's armamentarium. The *tactus eruditus* is not enough; it is not sufficiently erudite. Some very skilled diagnosticians have satisfied themselves of this by comparing their own tactile estimate with the markings on the instrument in given cases. The instrument is easily adapted to office work. The cases which supplied Janeway's data were all in private practice, not in hospital, where, by the way, conditions of hypertension are usually far advanced.

Visceral Arterio-sclerosis.—From time to time some one subject looms above all others on the medical sky line. To-day it is the discussion whether Bright's is a disease of the whole economy or a local renal affection. It was but as yesterday that the dictum, "A man is only as old as his arteries," arrested attention. Not so long ago Brehmer's aphorism, *Tuberculosis primis in standiis semper curabilis*, was the most conspicuous skyscraper. We are led to revert here to hardened arteries by a consideration of the valuable paper, "Concerning Arterio-Sclerosis of the Viscera," which Harlow Brooks read recently before the New York Academy of Medicine. He had studied 400 case histories, all ending in necropsy, and only macroscopic deviations from the normal were noted. He investigated especially all such arterial changes as had evidently resulted in a lack of normal functional relationship between these vessels and the tissues dependent upon them for their blood supply. Of these 400 cases 368 showed disease of the visceral trunks. The vessels involved in the order of their frequency were: The coronary (270), the cerebral (132), the renal (81), the pancreatic (74), the hepatic (43), the spleenic (35), the pulmonary (20), the spinal vessels

(20), arteries of the cæliac axis and its visceral branches (19). In all except 30 of the 368 cases more than a single visceral distribution was found to be invaded.

Brooks believes that the changes are likely to appear first and in greatest degree in the vessels which are called upon to functionate most actively under the special stimulus at work. Thus, in heightened heart action, as in alcoholism, severe labor or nephritis, a prolonged hyperæmia of the myocardium is likely to result. Overalimentation would induce a similar hyperæmia in the pancreatic, gastric and hepatic structures. Soon the corresponding vessels would show prematurely senile changes.

The pathological alterations following upon these arterial lesions differ according to the precise change present in the vessels, the etiological factors (including toxic conditions, as in tuberculosis and syphilis), and the anatomical and physiological nature of the organ affected. As a general proposition the first effect of the arterial disease appears in the parenehymatous tissues supplied by the vessels; thus results atrophy, brown atrophy or fatty infiltration or degeneration. Diminution in functional capacity follows. In time, according to the laws governing atrophy and interstitial growth, there is connective tissue hyperplasia, originating from the perivascular cells or from the normal supporting stromer of the organ. Occasionally, instead of these atrophic and sclerotic alterations there is an abnormal deposition of fat, with which the interstitium of the affected tissues becomes overcharged.

Among the symptoms of visceral arterio-sclerosis are: Depressed function, as deficient or irregular cardiac contraction, or insufficient production of digestive ferments, or delayed transmission of nerve impulses. Pain is a more or less constant symptom, as it should be a very significant one. There is the darting or burning agony of angina. There may be oppression, weight or pressure in the affected region. Not only about the heart but in other viscera and tissues may pain be pathagnomonic—as in erythromelalgia and Reynaud's disease. In one of Brooks' cases where abdominal pain during life was intense, extreme pancreatic and coronary arterio-sclerosis was found on autopsy.

Brooks agrees with Strumpell that present methods of diagnosing arterio-sclerosis are insufficient, depending as they do almost entirely upon the condition of the superficial vessels; in his 400 cases the diagnosis had been made during life in but 154. In most cases disease of the peripheral trunks probably succeeds (if it occur at all) marked sclerosis of the arteries of the important internal organs. In some cases of cerebral arterial disease, the retina may give proof to the opthalmoscope. Occasional and otherwise unaccountable elevation of blood pressure should make one suspicious. These and the other indications stated should make it possible to diagnose arterial disease when prophylaxis or preventive measures can be instituted; at least logical and intelligent treatment could be vouchsafed the patient. At present this very serious disease is generally recognized only when practicable measures are useless.

The Thoracic Duct and Tuberculosis.—Inhalation has maintained its place in the scientific discussions of recent years as the main avenue of tubercular infection. That by way of the alimentary tract unquestionably comes next in importance; the route here traveled by the bacillus is by way of the stomach, the intestines, the lacteals, the thoracic duct, the vena cava, the right heart and the lung. As is so often the case in medical discussions, some rather extreme views have been set forth. That of von Behring, for instance, who has held that tubercular infection is practically always by means of the infected milk which infants consume, thus occasioning a latent tuberculosis, which may not manifest itself until adolescence. While this manner of infection undoubtedly occurs and is very important to consider, it is not, of course, the only mode. There are those again who lay chief stress upon the meat of tuberculous cattle. Here again there is danger; but not the greatest danger, chiefly because it is more the viscera of animals which is tuberculous than the musculature. Unquestionably, also, excreta containing bacilli from the upper air passsages are swallowed, especially by children, and induce tuberculosis. The profession has indeed sustained a misfortune in that Welch's masterful and logical address before the National Association for the Study and Prevention of Tuberculosis in May, 1905, on "The Channels of Infection," was extempore and has not, so far as we know, seen the printed page. In this address extreme views were reduced to a just proportion. Ingestion tuberculosis, then, is a matter important of consideration, especially from a prophylactic viewpoint. Here the thoracic duct must be considered. There is Ravenel's classic experiment: He fed bacillus-laden butter to healthy animals and having killed them shortly after their meal, found bacilli in the chyle in the thoracic duct, although the intestinal tract showed no primary focus of tubercular infection. W. T. Longcape ("Tuberculosis of the Thoracic Duct and Acute Miliary Tuberculosis," *American Medicine*, January 6, 1906), presents a series of cases demonstrating that the thoracic duct receives tubercle bacilli from the various lymph channels throughout the body. He finds tuberculosis of this duct to be of great frequency in cases of the acute (miliary) type of the disease. From the lesions in the duct bacilli are swept in great numbers into the general circulation. In certain cases the bacilli are to be found in the lymph from the duct, though the duct itself is not the seat of tuberculosis. It were interesting to study how large a proportion of such thoracic duct lesions arise from bacillus-carying ingesta.

Bismuth or Blood?—In various gastric, intestinal and hepatic diseases, it is of the utmost importance to watch the fæces for evidence of hæmorrhage. Provided the hæmorrhage is copious either in the form of bright blood or as what the laity graphically describe as "chunks of liver," the diagnosis is easy. Even hæmorrhage occurring as coffee-grounds or tar, is quite distinctive. In many cases, however, the blood is comparatively small in quantity, altered in color and intimately mixed with the fæces, so as to cause only a general darkening of the mass. We believe that it is a reasonably safe rule that a hæmorrhage not large enough to cause at least a dark-brown color, is not of clinical importance and that even the guaiac test, properly modified, can scarcely detect it. Indeed, the guaiac test is not so delicate as it is usually supposed to be. Dr. J. Dutton Steele states that

the extreme limit of the test is the ability to detect one part of blood in eight parts of fæces.

Darkening of the fæces may be caused by the ingestion of foods rich in blood, by certain dark berries, as huckleberries, by charcoal, salts of bismuth and, according to some authorities, iron. Iron in medicinal dose, however, practically never causes conspicuous darkening. A decided dark brown tinge may also occur without the introduction of extraneous pigment, in rather hard fæces containing bile pigment not reduced to the normal, nearly colorless state of hydrobilirubin.

Obviously, the very cases in which small dribblings of blood are to be looked for, are the very ones in which charcoal and bismuth are frequently administered. We have personally known of instances in which hæmorrhage has been overlooked simply because the physician was expecting charcoal or bismuth sulphid to appear in the fæces. We do not know of any naked-eye test that will enable a distinction to be made. On the contrary, this is one of the problems in internal medicine in which, the greater the experience, the less the ability to make an off-hand distinction. Under the microscope, the woody structure of vegetable charcoal may sometimes be detected, bismuth sulphid appears as isolated, rather slender, irregular, oblong crystals, and animal charcoal as small particles still retaining an almost absolute blackness. Even in concealed hæmorrhage, groups of red corpuscles are often detected and the dark color under the microscope usually shades into a reddish brown. The guaiac test may also be applied, either after extracting with ether or in the simpler form reported elsewhere in this issue.

The great practical importance of this differentiation needs no argument, while the very fact that some condition has been supposed to be present, requiring the soothing and astringent action of bismuth, is the best possible reason for refusing the easy and comfortable explanation that black fæces are due to the drug.

Medical Insurance.—The Medical Society of the State of New York has, very wisely, incorporated into its scheme of organization, a form of insurance previously maintained by the New York State Association. This insurance relates to malpractice suits and assures every member of competent legal advice and defense, in case of threatened or actual suit.

The matter of life insurance has frequently been raised, by a small minority, as a function of formal medical organizations. Thus far, with the exception of a few grants in the spirit of charity and fraternity, it has been decided that such insurance, along with other forms of insurance already amply provided by regular insurance companies, should not be made a function of medical organization.

Private companies have also, for comparatively small fees, guaranteed to physicians, not only legal advice and defense in alleged malpractice, but also the payment of a limited amount of damages in the event of an unfavorable result of the suit. The forms of policy differ somewhat and we would advise physicians contemplating such insurance to consider and compare them very carefully. We recollect one form of policy which, on the face of it, seemed to offer considerably greater protection than another, especially in the amount which the company was willing to expend in any given case. There was just one suspicious feature—the agent was a little too liberal with the mud which he threw at a competing company, whose general standing was high. Upon careful investigation, we ascertained that while his own company guaranteed to spend more money on an individual case, it did not guarantee to spend any of it in the direct payment of damages, so that, by rating its fees to its own attorneys at a high enough figure, it could not only refuse to pay damages but could even abandon a suit at a critical point.

So far as the general protection of the individual practitioner in good standing is concerned, that afforded by the State Society, as part of the equivalent for dues, is superior to what is offered by private companies. One important particular must be considered. The private company regards the matter as a purely business matter, and may compromise a suit by the payment of a sum to be agreed upon. On the other hand, the state society aims, not to protect the careless or incompetent physician but to vindicate any one wrongfully attacked. Thus, in the former case, the physician may be spared an expense and yet be placed in a most unfavorable light in the community while, in the latter, there is really no insurance against those miscarriages of justice which are fairly common in jury trials.

For the present, we are rather inclined to advise the carrying of private insurance against malpractice suits—or rather against their possible unfavorable outcome. Ultimately, we believe that the scope of the insurance of the State Society should be extended so that aditional insurance will be entirely unnecessary, unless for physicians of considerable means, who, like wealthy members of the community generally, are frequently looked upon as desirable marks for one kind or another, of blackmail.

Excerpts from Dr. Osler's writings have been put into one volume, entitled "Counsels and Ideals from the Writings of William Osler," edited by his pupil and friend, Dr. C. N. B. Camac. (Houghton, Mifflin & Co.) We quote with pleasure:

"The list of diseases which we can positively cure is an ever-increasing one; the number of diseases the course of which we can modify favorably is a growing one; the number of incurable diseases (which is large, and which will probably always be large), is diminishing.

"While temperance in the matter of alcoholic drinks is becoming characteristic of Americans, intemperance in the amount of food taken is almost the rule. Adults eat far too much; the physicians are beginning to recognize that early degenerations, particularly of the arteries and of the kidneys, leading to Bright's disease, which were formerly attributed to alcohol, are due in large part to too much food."

Laryngeal disturbances in babies have been studied by Greener (*Bost. Med. and Surg. Jour.*, Jan. 25, '05), who reports that out of sixty cases 15 per cent. presented laryngeal lesions: 10 per cent. showed paralysis of one or both vocal cords, and 12 per cent. were affected with laryngeal crises. The only form of paralysis observed was abductor paralysis, and of the six cases seen five were unilateral, one was bilateral, three were partial and five complete.

BIBLIOGRAPHICAL

The World's Anatomists.—By G. W. H. Kemper, M.D., Professor of the History of Medicine in the Medical College of Indiana, Indianapolis, Ind. Revised and enlarged from the original serial publication in "The Medical Book News," with eleven illustrations, nine of which are portraits. Philadelphia. P. Blakiston's Son & Co. 1905.

The object of this little book is to introduce to the profession the men whose names have adorned anatomic literature. There are presented concise biographies of anatomic masters who lived three hundred years before the birth of Christ, as well as those of the present hour. There is a total of two hundred and twenty-nine names in the list, and the names of sixteen authors. It will be found a valuable aid to the student of the history of medicine.

The Ophthalmoscope and How to Use It.—With colored illustrations, descriptions and treatment of the principal diseases of the fundus. By James Thorington, A.M., M.D., author of "Refraction and How to Refract," and "Retinoscopy;" Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for graduates in medicine; member of the American Ophthalmological Society; Fellow of the College of Physicians, etc. Seventy-three illustrations, 12 colored plates. Philadelphia. P. Blakiston's Son & Co. 1906. pp. 298; 12mo. $2.50.

This book has been prepared for the student and general practitioner who desires to obtain a working knowledge of the Ophthalmoscope with the interpretations of its findings, adapted to the every-day service of the general practitioner. The book is highly commended for the purpose indicated, the text and illustrations being confined to those diseases which can be understood by the non-specialist.

Seventy Centuries of the Life of Mankind.—By J. N. Larned, of Buffalo, author of History for Ready Reference, and of various school histories. Springfield, Mass.: C. A. Nichols Co. Cloth, $4.00.

This work consists of two volumes each of about 500 pages, besides indexes. The illustrations are particularly good, consisting of reproductions, in color or black and white, according to the originals, which are famous pictures and portraits. Several maps present graphically various historical points, as the extent of the Roman Empire at different periods, the growth of constitutional government, and the development of the modern republics, etc.

Both author and publishers are to be congratulated upon the respective excellencies of this work. It is admirably adapted to the use of the busy professional man who wishes to keep well informed, without wasting too much time on details. Unlike many historic and other epitomies, this work is no mere chronicle of facts. The indexes are elaborate and in themselves constitute a dictionary of history for ready reference. The text, on the other hand, is a logical and consecutive history of the development of the human race, from the prehistoric stage of the ethnologist and archæologist, including the recent discoveries in ancient Oriental and Asiatic history, up almost to the present.

The Eclectic Practice of Medicine.—By Rolla L. Thomas, M.D., Professor of the Principles and Practice of Medicine in the Eclectic Medical Institute, Cincinnati, O.; ex-President of the National Eclectic Medical Association; Consulting Physician to the Seton Hospital. Illustrated with 2 lithographs in colors, 6 color prints and 57 figures in black. 8vo, 1033 pages. Price: cloth, $6.00; sheep, $7.00. The Scudder Brothers Company, Cincinnati.

From what we are able to judge from our limited knowledge of the subject, we should say that this is a representative, excellently written exposition of the eclectic system of medicine.

The etiology, pathology, description and diagnosis of disease, is necessarily the same in all works of this kind, and we will only say that the text is clearly and concisely stated for practical purposes.

The therapeutic part alone distinguishes it from other similar works, although here may be found much that is in common use in the general practice of medicine.

The eclectic physician will find the work just what he needs in his every-day duties, and all practitioners may find many useful hints in dietetics as well as in the use of drugs, some of which may be new.

The publishers are to be congratulated upon their part in the undertaking.

Black's Medical Dictionary.—Edited by John D. Comrie, M.A., B.Sc., M.B., M.R.C.P., Edin. With over 350 illustrations in the text. 12mo., pp. 855. $2.50. New York: The MacMillan Company. London: Adam and Charles Black.

This little book stands between a technical Dictionary of medicine and one intended merely for the domestic treatment of commoner ailments. The text consists partly of some of the excellent medical articles originally contributed by Dr. J. O. Affleck to the Encyclopædia Britannica, intended for the lay reader. The remainder of the book is made up along similar lines. The articles have been designed mainly with the object of making clear to the reader what are the normal functions and how they are affected by disease. With regard to such practically important matters as those in which unskilled persons can safely be trusted to render aid to the injured, and to increase the comfort of the sick, full details are given. The book will be found very useful, to any intelligent person, and will help decide when to send for a physician.

Food and the Principles of Dietetics.—By Robert Hutchinson, M.D., Edin., F.R.C.P. Assistant Physician to the London Hospital and to the Hospital for Sick Children. Author of "Lectures on Diseases of Children," "Patent Foods and Patent Medicines;" joint author of "Clinical Methods." With plates and diagrams. Revised edition. New York: William Wood & Company, 1906. pp. 582. Octavo. $3.00.

This book, designed to meet the requirements of students and practitioners of medicine, will be found intelligible and interesting to any one who desires the information which it conveys. A considerable amount of space has been devoted to the patent and proprietary foods, with a fair statement of their merits. The present edition brings the subject to date, the text having been rewritten and changed to suit present conditions. The subject is presented in a style easy to read and will be found most instructive. If one can afford but a single book on the subject, this will be found the volume he wants, and it is cheap in price.

CORRESPONDENCE

THE EPIGRAM IN MEDICAL WRITING.

To the Editor of THE MEDICAL TIMES:

We have recently read what seemed to us, at first thought, a most admirable and concise article on a medical subject. The statements made were brief, pointed and positive. There was no vacillation, no shifting of views, no tedious weighing of discordant opinions, no puzzling discussion of exceptions and failures. Everything was simple and clear and we learned much that was entirely new. Then we came across the italicized statement that "not one drop of water is ever absorbed from the stomach." That reminded us of Burdett's story of the mathematical prodigy who was visited by a committee of prominent citizens and educators. Various members of the committe propounded lengthy and complicated problems in addition, subtraction, multiplication and division, and no sooner was the question completed than the answer was forthcoming. On the way home, while discussing the precocity of this wonderful child, it occurred to one of the party to ask, "Oh, by the way, did any of you think to check off that question that I asked?" And it was then discovered that no one had prepared a question in advance and that no one had followed the lightning-like calculations of the boy by the slow and old-fashioned but reliable pencil and paper method. Now, when we saw this beautifully clear-cut statement as to the water-tightness of the stomach, we recalled the distinctly less epigramatic and more conservative statements of various physiologists, and we remembered also a patient with a cancerous stricture of the pylorous who did not even pass a mineral oil administered by the mouth and whose pylorus was found absolutely closed after death, and who yet perspired, passed urine, breathed out moisture and failed to become dessicated, although only small quantities of water were administered by the bowel—less, indeed, than was passed in the urine and fæces. The writer was among the first to preach that the stomach was not essentially an absorbing organ, that its lining membrane was not adapted to this purpose, and that the stomach contents were very early passed on to the duodenum, in waves; and would agree most heartily with any conservative statement as to the scanty absorption of water or anything else from the stomach itself. But, if not one drop of water were ever absorbed from the stomach, we doubt seriously if the gastric veins would drain into the portal, and physiologists would not have found an abstraction of solids from carefully ligated stomachs.

Re-reading the entire article with the hint obtained from this one statement, it appeared in quite a different light. Definitions were seen to have been created by the author at his own sweet will, human beings were susceptible to a regimen, exact as to quantity and frequency, all those who varied from this regimen had murdered innocent victims, and the author's cases not only all recovered—unless his instructions had been disregarded—but they recovered within a definite and convenient limit of time.

We can understand even a careful observer and honest man making untruthfully brilliant statements under the excitement of argument on the floor, but we can scarcely comprehend his doing so through the commonplace media of pen and typewriter unless his inhibitory intellectual centres have been themselves inhibited by some therapeutic agent—possibly spiritus frumenti, cocaine, etc.—or by some peculiar psychic state.

It was our good fortune, quite a while ago, to listen to the lectures of two celebrated medical authorities. One was criticised by the students as emphasizing nothing, the other as emphasizing every detail, so that in either case there was no literary perspective. We are rather inclined to believe that a successful teacher of the rudiments of any art or science cannot be strictly truthful. In order to give a bird's-eye view of a subject with sufficient clearness, he must omit many details and possibly even rearrange his landscape, lest, in the endeavor to describe every exceptional inequality of surface, his hearers become entirely confused. Indeed, of the two best and most impressive medical teachers that we ever listened to one failed of promotion because his fellow-scientists could not depend upon his statements, and the other was retired largely because he was regarded as superficial.

Whatever slurring over of facts may be allowable in endeavoring to give a broad view of medical art to immature students, it behooves the teacher of the medical profession, that is, the reader and writer of papers, to be painstakingly accurate, even at the loss of brilliancy and interest. In ordinary journalism every article is a *story*. In other words, a well-written and interesting account of an occurrence is the ideal, and not an occurate presentation of facts. There is no serious objection to this. If the lady who is run over by a street car is not so beautiful, young and well dressed as she is represented; if a distinguished politician is described as saying things that he ought to say or that the paper would like to have him say, instead of being asleep and unacessible to the interviewer, no great harm is done, for every one discounts the statements made.

It is undesirable to cultivate a sceptical spirit in scientific and professional life, although, under existing circumstances, it is quite necessary. In general, the man who holds that all men are liars is deceived more often than the one who believes everything that he sees and hears. We must also remember that a very considerable part of the damage to society caused by dishonesty as to property and statements is the trouble of guarding against thieves and liars, rather than the actual loss incurred. An incautious, hyperbolic or improperly qualified statement carries all the practical loss and danger of a wilful lie, and the fact that health and life are at stake in matters of medical lore ought to be a warning to us all to be extremely accurate in any published statement.

A. L. BENEDICT.

Buffalo, N. Y., March, 1906.

Piracy in Medical Journals.—An esteemed correspondent writes us that his attention has recently been called to an aggravated case of piracy of medical literature. A physician in good ethical standing contributes to a journal, likewise in good standing, a medical article. This article is appropriated bodily, including the author's titles, by a journal which makes the most pretentious claims to authority in sanitary matters and which apparently exists for the purpose of booming various medical and semi-medical supplies among the laity and the weaker brethren of

our profession. The editor of the journal which originally published—and paid for—the article in question, feels aggrieved that the author should publish the same or a similar article in another journal but, on more careful investigation, becomes convinced of the fact that the publication is an unwarranted piracy. The author, in spite of the implied compliment as to the merits of his production, feels not only the irritation natural when property is appropriated without payment and without permission, but is liable to injury in his reputation in his profession, by the mere fact that his article appears in the journal in question.

But, there are all grades of literary piracy. There are several medical journals of good enough ethical standing except that they cater to ignorant medical practitioners and make too direct references to advertisements in the editorial and correspondence columns. In these journals, one will find the veriest twaddle from the kind of physician that uses the word *doctor* as a verb and contracts it to *doc* as a noun, and yet, in the next column may be found, appropriated from some other journal, a really excellent medical article by a writer of eminence.

The next step in piracy is illustrated in one or two other jourinals, which really maintain quite a high ethical and scientific standard, but which appropriate articles from other journals, sometimes with misleading prevarications to make them appear as original contributions, sometimes without any statement at all, sometimes with a confession in a foot-note.

Next in order is a form of piracy which is more or less justified according to circumstances. This consists in reporting or securing from readers quite full abstracts of papers read at congresses and stated meetings and publishing them in advance of the official organ. If the society simply publishes a volume of transactions, scarcely any one objects to such enterprise, least of all the readers and writers. In the case of the A. M. A. and a few other organizations, the anticipation by other journals of the official organ doubtless displeases those editorially connected with the latter, but, on the whole, the writers of the papers and the medical public are benefited.

Finally, we come to the most refined grade of literary piracy, which has all the dishonesty refined out of it and to which we ourselves freely confess—namely, the publication of abstracts and notes of articles appearing elsewhere, but with definite credit. As a matter of convenience for students, we suggest that all such references should give the date as well as the name of the journal, and the full name and address of the author.

Obesity.—The *New York Times,* in an eloquent editorial concerning this more or less serious affection, advises the sufferer to let "abominable nostrums alone. If the regular doctors can't help, and dieting and horseback and basket ball are without avail, there is nothing for the effected person to do except to bear his burden as gracefully as he can and as unrepiningly. There is no rational ground of hope in quackiness, however plausible the terms in which they are advertised, but, on the contrary, there is the pretty sure prospect of an undermined constitution or a swift taking off." We think this advice might wisely be applied concerning any other bodily ill for the alleged cure of which nostrums are advertised.

RETROSPECTIVE THERAPEUTICS

General Pathology, Symptomatology and Diagnosis of Nervous Diseases.—These affections are a *bête noir* to perhaps most physicians who are not specialists in the neurological field. The subject is indeed difficult, and "the exposition hard." The following (based upon Jakob's invaluable handbook on the nervous system in Saunder's series of Hand-Atlases), is a *résumé* which may at least put the practitioner upon the right track and guide him in the further study and investigation of such cases of nerous disease as may perplex him.

A nervous disease may affect arbitrarily a certain portion of the nervous mechanism and the nerve cells and fibres which it may happen to contain (as, for instance, diffuse or focal disease in the spinal cord, such as transverse myelitis). Or the disease may be confined to a combination of cells or fibres or even entire neurons which are anatomically and functionally related to each other. Or it may involve an entire pathway (system diseases). A *combined system disease* is one in which two or more different combination of neurons or tracts are attacked simultaneously. For instance, in focal diseases, the corresponding area of nervous substance is destroyed by an extravasation of blood; the result being a defect on the surface of the organ, or a cavity within the substance of the organ, in which the remains of the coloring matter of the blood can often be demonstrated long afterward, although the greatest part of the contents may have undergone absorption. In nutritive disturbances, such as arterial obstruction, compression or inflammatory processes, softening or suppuration takes place if pyogenic germs are present; here the cells and nerve-fibres involved undergo necrosis and degenerate completely. Leucocytes carry off the products of decomposition (fat, granules and albumin). Or a defect or cyst may result. The surrounding neuroglia becomes greatly thickened, forming an envelope which also partially fills the cavity of the cyst itself. A shrinking of the affected focus attends this process of cicatrization.

In addition to such inflammatory consequences every focal disease gives rise secondarily to a number of other morbid processes—"secondary degenerations," both ascending and descending, varying in the different nerve tracks and in part extending throughout the entire nervous system. The mechanism of these degenerations is as follows: Every neuron cell exercises a nutritive influence on its component parts, its processes. Destruction of the cell or interruption of its connection with the corresponding cell-fibre is followed by secondary degeneration of the distal extremity of the fibre. The cell itself also suffers secondary alterations if the fibre is divided in its continuity and the function is thus interfered with. After a solution of continuity, the degenerative process begins at once in the terminal (peripheral) divisions of the neuron, and eventually spreads to the entire course of the system affected. The degenerative process in any portion of a fibre separated from its cell begins at the periphery and works toward the controlling cell. Sudden and complete solution of continuity (trauma) will work a degeneration in a few weeks or months, and an irreparable gap results at the site of the degenerated nerve tract. Regenera-

tion takes place only in peripheral nerves; and is affected by the proliferation of germinal cells from cells of the sheath of Schwann, which eventually succeed in reconstructing the nerve fibre. Secondary degeneration (complete loss of fibre) must be distinguished from secondary atrophy or simple diminution in the bulk of fibres and cells.

Pathological foci in the cerebral cortex occasion secondary degeneration of the projection and association fibres which take their origin at that point. Degeneration of association fibres is usually only partial, because function may be carried on by means of collaterals which may have escaped. Secondary degeneration also occurs in the optic thalmus. Secondary atrophy develops in the various parts of the subthalamic region, the fillet, the red nucleus, and the brachium of the opposite side, while the remaining pathway and nuclei escape.

In lesions of the mesencephalon there is ascending and descending degeneration of the fillet and degeneration of the red nucleus and of the optic tract, while atrophy occurs in the ganglia of the pons, the brachia, the corpus dentatum of the cerebellum, etc. In cerebellar lesions degeneration takes place in the restiform body, inferior olive, middle peduncle, etc., while atrophy takes place in the red nucleus of the opposite side, the brachia, etc. Lesions of the spinal cord are followed by ascending degeneration of the sensory pathways (columns of Gall, the cerebellar lateral tract), and descending degeneration of the motor pathways (pyramids, anterior and lateral columns of the cord, etc.). Some pathways (as the tract of the fillet) seem to undergo degeneration in both directions; these nerve paths probably contain fibres of different origin. Anatomic alterations appear microscopically to be practically the same in primary as in secondary degeneration of the nervous tissues. Apart from coarse morphological alterations we know very little of the more delicate processes in the nerve cell and nerve fibre. In the ganglion cells the protoplasm becomes cloudy, then degenerates and finally shrinks. The cell becomes separated from its processes, which may eventualy disappear entirely, or be replaced by vacuoles and abnormal pigmentation. The nerve fibres swell up to several times their normal size; the medullary sheath breaks up into drops and finally becomes absorbed; the axis-cylinder may disappear either before or after the degeneration of the sheath. The spaces left by the disappearance of the nerve-cells and fibres become filled with a close network of newly formed neuraglia containing numerous blood-vessels with thickened walls; frequently round-celled infiltration and granule cells may be seen. Sclerosis, or substitution of cicatritial connective tissues for the degenerated nerve-fibres is the final stage.

With regard to symptomatology. The nervous tissues may react to morbid processes in one of two ways. They are stimulated to a morbid activity, or the function is inhibited and finally abolished altogether. These two phenomena often merge into one another, so that in the beginning the irritative symptoms will be more pronounced; then, as the disease progresses the paretic phenomena or abolition of function becomes more conspicuous. Disease of the motor corticomuscular pathway may give rise to irritative symptoms in the form of general convulsions, muscular spasms (tonic or persistent, and clonic or intermittent), coarse and fibrillar muscular twitchings, and to paralytic symptoms in the form of weakness (paresis or paralysis) of one or more groups of muscles, depending upon the extent of the diseased area. Disease of the sensory pathway may be followed by irritative symptoms such as violent neuralgic pains, morbidly increased sensibility (paresthesia, hyperalgesia), and by paralytic symptoms such as impairment or complete loss of sensibility or only of special kinds of sensation (anesthesia, analgesia, thermo-anesthesia). A disease of the pathways of coordination produces partial or complete loss of this function (ataxia, motor ataxia, static ataxia). The symptoms vary less by reason of the morbid process than on its localization and extent. It is essential to distinguish between focal and system diseases. The latter are confined in great part to definite tracts or systems—combinations of neurons. Here the symptoms are much more constant and logical than in focal diseases, in which the symptoms vary according to the topography of the diseased focus. The interpretation of the symptoms of nervous diseases rests upon the following principles:

A lesion of the *central motor neuron* is evidenced by paralysis of the muscles which it supplies, the muscular action being withdrawn from the control of the will power. Since the central neuron decussates the paralysis is on the opposite side; it is spastic (the affected muscles offer resistance to passive motion), the muscular tone is heightened (hypertonia), and the muscles tend to undergo spontaneous shortening (contractures). Except for a moderate degree of "atrophy from disuse," there is, as a rule, no true degenerative muscular atrophy (the amount of protoplasm in the muscle is not diminished). The reflex arc is not interrupted; the reflexes are, on the contrary, heightened. If the lesion is near the cells of this neuron (cortex, central convolutions), the initial irritative symptoms may consist in involuntary twitchings of the musculature affected, motor irritative symptoms, tonic and clonic spasms, epileptiform convulsions (mono or bi-lateral), choreic movements, or slow involuntary incoordinate movements, athetosis, or involuntary excessive and unusual movements of the fingers, etc.

A lesion of the *peripheral motor neuron* is also followed by paralysis of the affected muscles, but as the lesion is situated below the decussation of the neuron the paralysis will be found on the same side of the body. The muscle is flaccid (unresistant to passive motion), muscular tone is diminished (hypotonia, atonia), and there is no tendency to contractures. The rapidity of degenerative atrophy in the muscle depends on the character of the disease (the protoplasm of the muscle-fibres becomes cloudy and then breaks up into granules and is absorbed). A fibrous mass is the result, after the protoplasm of the muscular fibres has completely disappeared. Microscopically the degenerated muscle tissue shows the atrophied fibres, which have a reddish color, while the sound tissue is dark red. (Electrical diagnosis here comes into play.) The reflex arc is interrupted and the reflexes are therefore abolished. The fibrillary muscular twitchings, in which only very small fasciculi of the affected muscles participate without producing any motion in the muscle, are often to be regarded as irritative symptoms.

In lesions of the *sensory pathway* sensation is affected on the opposite side of the body in central neuron disease, and on the same side in peripheral neuron disease. The difference in the symptoms are, however, not so marked as in lesions of the motor pathway. The irritative symptoms, consisting of violent neuralgic attacks of pain, are referred to the posterior roots (peripheral neuron).

Since the motor tract traverses the entire nervous system, and in its course from the medulla downward the central portion successively gives off the peripheral parts, the motor symptoms observed in focal diseases affecting the central pathway are utilized, so to speak, as the abscissa, while the other focal symptoms correspond with the ordinates and thus indicates the level of the lesion.

When to Operate in Acute Mastoiditis.—This is a most important matter of consideration, for it is one in which the general practitioner much too often delays calling in the surgeon (as he must, if there is to be an operation—for here the bounds of "minor surgery" are transcended) until the case becomes inoperable. Kerrison (*Med. Rec.*, Oct. 28, '05) summarizes the indications: Sudden cessation of the aural discharge, other symptoms persisting, with deep-seated pain in the mastoid region. Marked sensitiveness to pressure on the mastoid over an area extending well beyond the limits of the antrum. In the absence of fever, if these symptoms do not yield promptly (within 24 to 48 hours) to abortive treatment. Marked tenderness over the antrum, persisting from four to five days after free incision of Schraprel's membrane. Marked variations in the quantity of pus discharged; its maximum flow being apparently too great to be explained by the tympanic lesion; its period of diminution being coincident with the development of mastoid pain or tenderness. Mastoid tenderness having been present and having disappeared, a discharge appearing from the tympanic vault which resists all rational non-operative measures. Finally, evidences of mastoid involvement having been present, the development at any time during convalescence of symptoms of septic absorption.

The Early Diagnosis of Pulmonary Tuberculosis.—Pryor (*Med. Rec.*, Nov. 25, '05) quotes the following excellent definition of incipiency or favorability from a committee report of the National Association for the Study and Prevention of Tuberculosis: "Slight initial lesion in the form of infiltration limited to the apex or small part of one lobe. No tuberculous complications. Slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight). Slight or no elevation of temperature or acceleration of pulse at any time during twenty-four hours, especially after rest. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent." (We would heartily advise every general practitioner to memorize this quotation; many a life may be saved by an intelligent application and appreciation of it.) Pryor, who has done much institutional work, declares his conviction that pulmonary tuberculosis is rarely recognized at an early and proper time for successful treatment. And herein is stated a pitiful truth. Inquiries submitted to a number of sanatoria in the United States, to learn the percentage of incipient cases received, as above defined, reveals the fact that the average percentages of all patients under treatment which could be designated as early and favorable varies from two to thirty. Among reasons for this state of things are: That the patient does not seek medical advice early enough; especially is this the case among the poor, who, moreover, receive incompetent counsels when they go to a physician or dispensary. Another is the faulty education in medical schools and the recent tendency to give prominence to laboratory methods at the expense of the skill of the clinician. One finds, in addition to the symptoms stated, loss of appetite, chlorosis or anemia, loss of weight, cough, with or without expectoration, hemorrhage and fever; it is very rare that all of these are associated at an early time. They are apt to be present at a later stage—particularly in patients who have had rest, nourishing diet and open air treatment; oftentimes under these conditions, few or no symptoms are manifest, yet the disease may be progressive. The physical examination should be painstaking, with the clothing removed to the waist.

In tubercular arthritis in children A. Broca deprecates surgical interference (*La Trib. Med.*, Sept. 9-16, 1905). The disease is general rather than local. As soon as possible consistent with joint immobilization open-air exercise should be taken; even when disease in one of the lower limbs prevents walking, the other limbs can be exercised. Residence at the seaside is advantageous, but not indispensable. Hydrarthrosis of the knee in children not due to traumatism is tuberculous. Here, after puncturing to verify the diagnosis the fluid should be evacuated, a ten per cent. solution of iodoform in ether should be injected, and the limb put up in plaster. The patient may thus be out of bed in from six to eight weeks. After six months the splint may be dispensed with; the joint is then stiff but not ankylosed. Plaster of paris is best for immobilization. There is then, even with an anæsthetic, less risk of general infection than an open operation or gradual rectification, though a rise of temperature for some days is usual. In spinal disease the use of plaster splints reduces the confinement to bed from two years to six months. As an adjuvant to the use of plaster splints local pressure is beneficial; a window is made in the splint and the affected joint is covered by cotton wool, firmly bandaged. The joint is examined every two weeks; if necessary, counter irritation may be done by iodine or mercury ointment; iodoform ether injection may be indicated. It is not well, however, to inject strong solutions near the joint for purposes of counter-irritation. Arthrectomy is seldom satisfactory; nor is excision much better. Operation is indicated for localized accumulation of pus, with or without fistulæ. In neglected cases septicæmia must be found; one must then operate promptly.

Chronic rheumatism is defined by Teissier (*Le Bull. Medic.*) as an infectious disease, the pathogenia agents being multiple and varied in different cases. Thus the disease shows itself in diverse forms. The osteoarticular type includes primary or secondary chronic rheumatism, certain forms of spondylosis (which are, however, rare), characterized by deforming articular lesions, and certain cases of Heberden's nodes. The serous type includes: cases of chronic synorvitis and tendovagini-

tis; some latent pleunisies; and (in general) such skin phenomena as purpura, erythema multiforme, and erythema nodosum. The fibrous type is seen in the hypertrophy of periarticular organs; in some cases of Dupuytren's disease, of spondylosis with alterations in the vertebral ligaments, and in scleroderma. The muscular type is seen in chronic rheumatismal myositis and some cases of spondylosis of muscular origin. The existence of tuberculosis rheumatism is merely hypothetical.

The triad of Hutchinson—interstitial keratitis, malformations of the teeth and deafness—the chief signs of hereditary syphilis, are dwelt upon by C. F. Marshall. *Treatment.*—The first of these affections usually appears in both eyes, but seldom both at the same time; it is of slow evolution (the whole duration may be from six to eighteen months); it is most common between the eighth and the fifteenth years, although it is said to occur even in utero; there is difference of opinion as to whether it is caused exclusively by hereditary syphilis or whether it may also occur in the acquired form. The treatment is that for syphilis in general. Luetic deafness is usually a bilateral affection, most common in hereditary syphilis at the same period when keratitis usually occurs; it is usually associated with subjective noises in the ear (buzzing and hissing), and also with vertigo. The pathology of this form of deafness is not determined. It is usually rebellious to treatment. Hereditary syphilis is the most common couse of deafmutism. Various dental lesions (both first and secondary) result in two ways—by retarding evolution and by arrested development and malformation. There are various types of dental erosions, several of which may occur in the same subject. Caries often attack syphilitic teeth at an early age. White furrows are sometimes observed. Irregular implantation of the teeth and malformation of the jaws are common to hereditary syphilis, the most usual type of the latter being prognathism of the inferior maxilla, which prevents the inclusion of the lower teeth within the upper and causes prominence of the chin. Like other signs of hereditary syphilis, dental erosions generally affect the first child more often than those born later.

An epidemic of influenza is now likely to appear at any time, wherefore it behooves the practitioner to take stock with regard to this disease. Its incubation period is from one to four days; the invasion is sudden—all the general symptoms of a sthenic fever being manifest, and in addition those of the particular local lesion, of which there may be several types, enumerated by H. Dayton (*Practice of Medicine, The Medical Epitome Series, Lea Bros.*): The *respiratory type* begins like a severe coryza, with symptoms of a sthenic fever, severe pain in the eyes, back and extremities (often described as "in the bones") and prostration. Intense general soreness is likely to acompany the subsidence of the fever. Symptoms of bronchitis, pleurisy, empyema or pneumonia may develop—the last of these a broncho-pneumonia of irregular distribution, protracted course, lysis and slow resolution. In the *nervous type* there may be only severe headache, pain in the back and extremities, and prostration. Or, there may instead be symptoms of meningitis, eucephalitis, neuritis resulting in acute pain or loss of sensation or motion, cardiac neuroses, and mental disturbances, such as melancholia and dementia. The *gastro-intestinal type* begins with acute gastritis—fever, nausea, vomiting, gastric pain—or acute catarrhal colitis—fever, colic, diarrhœa and perhaps jaundice. In the *fibrile type* the fever may be remittent or continuous and lasts from several days to two or three weeks. There is here often no little pain. In all forms convalescence is apt to be gradual and prolonged. Oftentimes the health is permanently impaired, with chronic bronchitis, cordiac weakness, etc. Respiratory complications (pneumonia and pleurisy), herpes, conjunctivitis and otitis media are common. Acute nephritis, cordiac affections and phlebitis are rarer. The diagnosis is made by the existence of an epidemic, the extreme prostration, the suggestive pains and by sputum examination in the respiratory type. The prognosis is good as regards life in uncomplicated cases, but the latter (and the sequelæ) may cause death or chronic invalidism. The treatment includes isolation if practicable. The nasal discharges and the sputum are to be disinfected. There is no specific. Bed, a purge and careful nursing and feeding to begin with. For pain, aspirin, phenacetin or morphine. Look out for heart with anti-pyretics (caffein gr. 1, or camphor monobromati gr. 2, or strychnin gr. 1-309, 3-4 hours). The usual treatment for catarrhal inflammations. In convalescence, rest, nutrition, change of air, tonics.

Vaginal cleanliness has been studied by Ahlfeld (*Zeitschr. f. Geb. u. Gyn.*, Vol. 54, No. 1), with regard to the question of the effect which the preliminary cleansing of the vagina has on the morbidity of the puerperium. No disinfecting effect can be obtained with a one per cent. solution of cresol; at least three per cent. is essential for efficient irrigation. The average of his "irrigated" cases in which no temperature occurred was about 68 per cent.; while during two years in which no irrigations were employed the number sank to 53 per cent. In operative cases the non-fibrile average was even greater than above stated; here the cleansing was more complete and thorough. When streptococci were demonstrated in the vagina before douching, a marked decrease in the number of growing organisms was noticed within a few hours after the irrigation had been given. Ahlfeld declares that as irrigation is attended with such good results it should be much more frequently employed. Here we thoroughly agree with him; but it is well, we think, to mention the scientific fact that of all normal bodily secretions those of the vagina are perhaps most inimical to micro-organisms.

Chronic uterine hemorrhage is considered by G. E. Shoemaker (*N. Y. Med. Jour.*, Nov. 25, '05), who analyzes the causes. Surgical intervention is called for in many cases; in this event all the pelvic organs and functions should if possible be preserved. Passive congestion yields to local treatment by support. Boroglycenide tampons may be indicated. Constipation must be corrected. Drugs are unsatisfactory in Shoemaker's experience. (Nevertheless, we do not think they are to be eschewed.) Diagnosis must precede . systematic treatment. Where a malignant lesion is suspected,

a bit of tissue must be examined. Bleeding fibroids will not always stop bleeding with the menopause. A marked hemorrhage near the time of the menopause may be due to malignant tissue. Changes in the endometrium associated with bleeding may not be accompanied by decided uterine enlargement, and careful examination may not indicate their presence. The most common change is a granular degeneration. Careful curettement usually suffices for a cure. There may be severe hemorrhages with a hydatidiform mole. Malignant degeneration of placental tissue is rare; here continuous hemorrhage occurs and death supervenes. Concealed or irregular cases or threatened abortion or retained placenta are apt to be puzzling. Many patients cannot or will not give a correct history. Extrauterine pregnancy may confuse the diagnosis; for some patients do not show any missed or delayed periods, have no typical pains or collapse, and have free bleeding in lieu of the brownish discharge, so that the real danger is overlooked, the case being regarded as one of ordinary miscarriage.

The differential diagnosis of ectopic pregnancy is made by B. H. Wells (*Med. Rec.*, Nov. 20, '05), who classifies the various forms of extrauterine pregnancy as follows: (1) Early, uninterrupted; (2) early, with rupture and free hemorrhage; (3) early, with rupture and extraperitoneal bleeding and hematocele; (4) advanced, with living child; (5) near or after term, child dead. Under (1) abortion, anti- or retro-flexion of the gravid uterus, pyosalpinx, hydrosalpinx, ovarian cyst, and ovarian or tubal new growths must be excluded. Under (2) cases must be differentiated from attempted abortion, acute gonorrhœal endometritis, rupture of a rudimentary horn of a bicornate uterus, rupture or perforation of stomach, appendix, or other abdominal viscus, and tumors of the ovary or tube with twisted pedicle. Under (3) hematocele, pelvic inflammation and abscess, cornual pregnancy, and malignant disease of the tube or ovary must be eliminated. Cases under (4) may be tubo-abdominal, or tubo-ligamentary, or subperitoneal, and must be distinguished from normal pregnancy with a thin-walled uterus, or pregnancy in a rudimentary horn. Diagnosis of the fifth class is difficult in the posterior ligamentary form when several months have elapsed since the death of the fœtus; here malignant ovarian tumor, tuberculous peritonitis and fibrocyst of the uterus must be excluded.

Appendicitis in children is usually found between the fifth and twelfth year, states Barrows (*N. Y. Med. Jour.*, Nov. 25, '05); it is also much more frequent in the country than in the city. Many cases start from a colitis; the disease seems more frequent during the season of unripe fruit. The appendix, being a part of the colon, does not escape when the latter is inflamed. By reason of its slender calibre, the shortness of its mesentery or its abnormal position it fails to throw off the products of inflammation, and by pressure the circulation in its mucosa is interfered with. It may slough; it is easily infected by the bacteria which infest the bowel. The diagnosis in children is very difficult. The pain is almost invariably referred to the umbilicus; there is nausea and vomiting, with constipation, and a great dread of being moved or touched. From the beginning of the attack, abdominal rigidity is present, and is a most important point in diagnosis. The question of the fever is relatively a minor one, but a rapid and increasing pulse rate and respiration are of grave significance. There may be an initial well-marked rigor, which is suggestive of the rapid development of gangrene, in Barrow's opinion. We must not exclude the bedside clinical history; however, an increasing leucocytosis, with an increase in the polynuclear cells and of the fibrine, helps considerably in the diagnosis. Prompt surgical intervention is called for in every case as soon as the diagnosis has been made. (Here we cannot too emphatically endorse the author's views.)

Panophthalmitis, declares Zentmayer, (*Jour. A. M. A.*, Aug. 19, '05), is capable of exciting sympathetic inflammation in the unaffected eye—an extremely rare occurrence, however. It is only after a virulent type of the disease that the resultant shrunken globe should be considered harmless. When, from th nature of the infection, the panophthalmitis has been of a low grade, or where as a result of treatment the inflammation has not assumed a virulent type, the eye should be considered a dangerous one and should be enucleated. In some cases where the prevalent panophthalmitis has been considered the exciting cause, the original injury or disease may have been responsible. Several factors contribute to render panophthalmitic eyes innoxious. When the globe is perforated, many of the microorganisms are extruded along with the pus, those retained within the globe becoming inactive through the enormous pus formation. This active pyogenesis, by blocking the posterior lymph spaces, serves to prevent migration of the toxic agents. The disease may, finally, have been excited by staphylostrepto-, or pneumococci, organisms probably incapable of inducing sympathetic inflammation.

Urotropin in typhoid bacilluria has the following advantages, according to Easton (*Bost. Med. & Surg. Jour.*, Aug. 17, 1905): Its moderate use throughout the disease prevents cystitis. Its routine use would seem to be strongly indicated, for thus may bladder complications be avoided, and the urine made innocuous to those brought in contact with the patient; a patient may, moreover, be dismissed with the fair assurance, so far as the urine is concerned, that he will be harmless to the community. The occasional uncomfortable sensations which may be caused by it do not invalidate its use. It is of least value in cases where an active inflammation of the bladder has occurred. (We subscribe to Easton's opinions, objecting only to the "routine" use of urotropin, as of any other drug.)

Changes in the nails after acute diseases have been observed by Eger (*Berl. Klin. Woch.*, May 15, '05) who describes three typical cases in convalescents after multiple neuritis, typhoid fever and toxic gastroenteritis. The effects are usually most marked on the thumbs, less so on the other fingers and toes, and consist of white spots or transverse furrows, in front of which the nail is very brittle and scaly. This condition appears as the nail is pushed forward into view by the growth of the matrix, and is probably the result of defective nutrition during the course of the illness. The ridge, which presents itself back of the groove is most likely due to a new proliferative process, which begins as the general disease subsides, and expresses an effort to get rid of the dead portion of the nail.

MISCELLANY

A nurse thoroughly accustomed to bottle babies has been advertised for in an English exchange. It is pertinently asked for what purpose these infants are used when "bottled."

The Japanese, during the late unpleasantness, lost but 15,000 men from sickness, as compared with 57,000 from wounds—a proportion unparalleled in military history. In most wars these figures have been reversed.

The transfer of patients, either comatose or dying, from private hospitals to Bellevue in New York City, has been justly rebuked by the Coroner's office. It is shocking indeed that even a single such case should occur, based upon the anxiety of the private institution not to raise its death-rate.

For the sleeping sickness there is no remedy, declared Prof. Koch in a recent lecture on his return after a journel of investigation in Africa. He hoped, however, that the infection might be ended by the extermination of the insect (which propogates slowly), by burning the underground at its favorite home.

Hernia in young children, states Warden, is often cured by the wearing of a truss for a few years, the cure being caused by the development of the child and a more or less complete closure of the hernial sac. In adults the truss is more of a palliative measure, holding in the hernia but not curing it.

Chloroform should not be administered too near a gas jet or stove (*Internat. Jour. Surg.*). Its vapors are thereby decomposed, forming products which when inhaled by the patient, the surgeon and his assistants may give rise to a serious nausea, vomiting and pulmonary and renal irritations.

A just sentiment was recently expressed by Dr. M. Allen Starr at a meeting convened to consider the establishment of a hospital in the Bronx Borough. He did not favor the installation of regular attending physicians, but believed that the practitioners of the vicinity who would send cases to the institution should treat them there themselves.

A process of photographing germs by means of the so-called ultra violet rays of the spectrum has been evolved by Prof. Ernst of the Harvard Medical School. By this means, it seems, each germ "stands out separate." Heretofore the process of discovering the size and shape of germs has been carried on by chemical means.

Homes for Poor Convalescents.—The Comptroller of New York City has urged that it lease the Manhattan Beach and the Oriental properties, including the hotels, for convalescent homes for the city's poor. These holdings may be bought outright for $3,150,000, or they may be rented for $150,000. Are not the municipal authorities becoming philanthropic to a rather dangerous degree?

Absent Treatment by Mail.—Mrs. Helen M. Post was recently found guilty in the United States Court at Jacksonville in Florida on the charge of using the mails for fraudulent purposes. She professed to cure all ills to which flesh is heir by "absent treatment," and declared that she was at the head of a school of "a million or more." One can thus by the help of a large clerical force manage a large and very remunerative practice. The sentence was to pay $500 fine and to spend thirty days in jail.

A prehistoric vesical concretion is noted as having been discovered, by Elliot Schmidt, in a sarcophagus, estimated to have been built 7,000 years or more. This concretion, which consisted exclusively of uric acid, with an envelope composed of phosphates, lay between the two iliac bones "of an adolescent sixteen years old." We are lost in admiration of the science of archæology, which can, at a distance of seventy centuries, estimate the precise age of a prehistoric "stiff."

Radium cures were recently demonstrated by Dr. Robert Abbe. Superficial cancers, lupus vulgaris, and even goitre were among his cases. On the other hand equally competent observers very gravely deprecate the use of this element, declaring that it is not curative, and that much valuable time is lost by its prolonged use. We believe that at present there is need for great conservatism in this matter. Dr. Abbe agrees with all good observers that radium has no action upon deep-seated cancers.

How to dust a room is explained in a card issued by the New York Charity Organization Society's Committee on the Prevention of Tuberculosis. One should not use a feather duster, because this does not remove the dust from the room, but only brushes it into the air so that it is inhaled; or the dust settles and the work must be done over again. Soft, dry cloths should be used, which are shaken frequently out of the window; or slightly moistened cloths, which may be rinsed out in water after using them.

Don't prophesy until you know is a very good maxim, which was, however, recently ignored by a newspaper man overeager for an item. He detailed a difficult operation by a Roosevelt Hospital surgeon as having been done nearly twelve hours before the operation in reality took place. The surgeon who later officiated at the reported removal of a stone from the kidney was astonished and amused to read at breakfast on the success of his work, which he was not to begin until that afternoon.

The importation of opium except for medicinal purposes has been prohibited in all the Australian States. The Chinese are the chief customers for the drug in that part of the world, where the drug is grown locally, some twenty-eight tons having been produced in a year. These prohibitions, following upon the Transvaal enactment, is a decided triumph for the Anti-Opium Society. There will be some loss of revenue; Queensland alone has derived some $50,000 a year from this traffic. The gain, however, is worth the sacrifice.

St. Mary's Shelter is a touching charity whereby the most wretched and forsaken among the weaker sex are vouchsafed a shelter and a night's rest. At all hours of the night women may enter. No questions are asked, no recommendation is needed to secure admittance. There are no restrictions of race or creed. Warm, clean beds are provided, a bath and comfortable meals. Those who wish may get work in the laundry attached, or elsewhere. "If on the contrary, such be their pleasure, they may wander forth again when morning comes, preserving the secret of their identity."

"THE GREAT WHITE PLAGUE."

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

GREAT actresses have great hearts. They love humanity as sincerely as they love their histrionic art. We learn from the public press that it is the purpose of Olga Nethersole to quit the stage in eight years and devote the remainder of her life to fighting tuberculosis. She says: "Since I was a small child I have known Sir Alfred Fripp, surgeon to King Edward. It was through him and a dear friend of mine, who was afflicted with tuberculosis, but was finally saved, that I took such a deep interest in the work. I have my own hospital in London. Many other hospitals in the country are bending their best work in this direction. Yet they will be powerless to prevent the constant spread of the disease unless the people themselves are awakened. This is my work."

The most eminent tragedian of his day, Edwin Forrest, had a big heart that prompted him to build and provide for a suitable home, located in country air outside of Philadelphia, for invalid and broken-down actors and actresses of prominent note and worthiness. A number of the most famous dramatic artists who have graced the American stage in former years have spent their fading hours in the refuge of the Edwin Forrest Home. Forrest remembered the aged and unfortunate of his professional craft. Nethersole opens her responsive heart to the greater work of trying to help redeem the afflicted world from the scourge of consumption.

It is no longer the province of medicine to administer drastic pukes and purges for ailing humanity—to prescribe dulling dopes and patent deceits that could only decoy and betray the struggling and vanishing chances of life. Eminent minds are getting down to analytic study of the befouling dust and smoke of the battle-field that excoriates and strangles the lung power of the wounded before the salvation of nature can effect the rescue. London is particularly a smitten city. London breathing air and tenant houses are perjured with the toxic elements of physical perdition. Most of our American towns and cities are in the grasp of similar condemnation. Our people are belted to toil where the machinations of enterprising money makers have constructed vast arenas of business progress that heedlessly barred out nature's merciful envoys of health and vitality—so we also have builded a nation of consumptives. But we now glance again at Nethersole's mission in smudge-and-fog-bound London. The fog-air of London, as in any other considerable city, is disastrous to the health of the lungs because it holds in condensed presence to earth and therefore to street and house air all the combustion or fuel gases and smoke and sewer feculence produced in said city, and a measure of which must be inhaled with every breath. It is computed that London embraces about twice as many houses, manufacturing plants, and similar consumers of carbonaceous fuels as Philadelphia. Besides locomotives, stationary engine houses, et cetera, on a cold day these London houses consume forty thousand tons of coal. The thriftier working classes in American cities burn a larger proportion of fuels ordinarily than do London working classes, where three families out of five are said to earn but three shillings a day. It is estimated that from every forty thousand tons of coal consumed in the houses of London (American cities ditto) on a cold day there is emitted four hundred and eighty tons of sulphur in sulphur gas. In absence of late statistics, in gone-by days six million tons of coal were required to produce the gas used in lighting London each year. Other modes of the consumption of fuels are not specified in my reference, but the weight of the smoke cloud overhanging London was computed at fifty tons of solid carbon, and two hundred and fifty tons of hydro-carbon and carbonic acid gases for each day.

If we will expand our reasoning, we will easily comprehend that an uncomputed proportion of these lung-destroying poisons was emitted into the breathing air of the inhabited houses, shops, factories before drifting into the outdoor air for general distribution. In Philadelphia there are two hundred and fifty thousand houses, to say nothing of smith shops and manufacturing works in great profusion, where there is a tremendous consumption of fuels. The amount of fuel gases produced daily in a great manufacturing city is not readily computed. It would have to be first ascertained how many thousands tons of coal, coke, coal oil, benzine, wood, illuminating gas were burned in dwellings, business places, factories, iron works, locomotives, and at unnumbered avocations, and from the bulk of combustibles burned compute the bulk of toxic carbonic oxide gases produced and thrown off into the immediate air to confront the lungs of humanity of all ages. I am here bending my attention to the original persistent devitalizing blight to the lungs of population independent of harboring a stray bacillus by accident and all belief that the hapless microbe must be the starter of tuberculosis degeneration of the abused lungs themselves or other organs. Madam Nethersole may establish a dozen hospitals for convenient resort and care of victims of consumption; for the help of initial cases taken from the haunts of unsanitary and overcrowded rooms; but never for the effected cure of tuberculosis in the smitten air of London. The breath in her hospitals, as in our American city hospitals for invalids, is pregnant with the corrosives evolved from the various fuel combustibles in continuous use by the dense city. Unless hospitals for the relief of consumption are located amid clean air with its refreshing ozone uncontaminated outside of city limits, one may preach himself blue and bolster his faith with moonshine dreams, but he will not see real cases cured, because there is no release of the lung functions and lung tissues and circulating blood cells from a continuous repressive blight in the common breathing air—most probably covered from recognition by the "smell" of carbolic acid or other malodorous blankets to the senses.

Let us for a few minutes get down to the actual situation. The combustion of a ton of coal requires five hundred and thirty-seven thousand and six hundred cubic feet of air—and thereby produces nearly three tons of carbonic oxide gases. Wood, though consuming less air in burning, while burning throws off a corresponding volume of poisonous carbonic oxides, the same as do coal, coke, and charcoal. Illuminating gas and kerosene when burned in the breathing air of rooms consume largely the oxygen of each room air and meanwhile emit toxic smoke and gases right there and then when closed from the outdoor air. The emitted smoke and gases are accumulatively oppressive and depressive to the organs of respiration first—then to the entire organism. Add to this corrosive tracheal and lung

wear the admitted effluvia from near-by privies, from sewage, uncanny housekeeping, musty carpet dust, from the physical débris of re-breathed air besides the lung grind incident to unsanitary shop and business life—how are these abused lungs to escape physical breakdown by the thousands—wherein the tuberculous waste of which we meet the scavenger bacillus ferment which subjectively has been so falsely blamed for the whole bad business because found on the scene of physical destruction. Now, then, a hospital located amid a naturally devitalizing atmosphere makes little more than a stage bluff at curing consumption if once confirmed in its wear and waste of perverted nutrition. Release of the lungs, and consequently of the blood and its functions, from these invidious breathing-air depressants, has laterly been made the special sanitary objects of what is now known as the open air treatment for consumptives in all varieties of weather and rigidities of temperature—in too many cases too late adopted and rather over-strenuously conducted for permanent success. The anchor of cure is liable to early break, unless the patient can avoid relapse by persistently remaining away from the snares of close and heated rooms and demoralized air.

At present there is rising an enthusiastic and promising boom by special promoters of the outdoor fresh air treatment, pushed to seasoning tests of winter severity, braving cold and storm the same as basking in sunshine hours with Laplander sturdiness for the healing luxury of inhaling the sweet ozone of pure air. Certain subjects who possess sufficient vital store to build with bear the test of exposure with decided benefit, while the thin and bloodless are shriveled to rapid exhaustion. A lady told me yesterday that her consumpted husband had made a trial of the White Haven treatment, but so rapidly became worse that he could not stand it, and was compelled to return to the comforts of his home, where he now thinks that he is getting well —a hope she knows will never be realized.

England has been rousing attention to the superior importance of sanitary air breathing for arrest of consumption and prevention of tuberculosis. Since the tuberculin flummery of the Koch and Behring "antidote" has been decently combed out, the pathology of consumption has been revised. It is at last dawning on the laggard apprehension of men who thought they were lung specialists that lung work of every individual with every breath deals directly and subjectively with the quality of the breathing air that the lungs must handle; that the quality of the respired air determines the quality of the blood corpuscles, that the quality of the blood determines the quality of the nutrition and health—hence, hospitals are being established where the values of decent air for respiration are made to supersede the fallacies of drug medication in consumption. Outside the lines of our visionary "germ" faddists who are yet infatuated with the exploits of drug and serum antidotes to twiddle-dee victims through the degeneration of the great white plague, wiser and sensible minds are discerning that a previous environment, through the villainies of abusive breathing air, lays the substrata defects of outworn and wasting lungs. The advanced thought apprehends that lungs have to deal with aeration and the competent repair of the blood for healthful nutrition—instead of battling with the blanch of pungent carbolic acid, or chloride of lime or formaldehyde fumigations. Are we doctors? Shall we parade with placards of falsehoods? Shall we actively compass the conditions that lead or lapse into physical conflagration, or shall we content ourselves with learnedly formulating theorems for squirting antidotes at the consuming flames after they are kindled?

Consumption does not set in as an independent disease by itself, as do measles and smallpox, for instance. Consumption is rather a sequence of various pathological antecedents. There have been repeated assaults of what are termed "colds" from lack of understanding, but usually caused by breathing air irritants. There have been catarrhs of breathing membranes; severer aggressions of influenza or of pneumonia; deflections of neuroses and nutrition; deviations from normal equilibrium and vital tone comprehensively. All these have been slavishly wrought through subjugation of the breathing channels to such deteriatives mixed with the breathing air as not only naturally induce local and systemic disabilities, but interfere also with their cure. All breathing leads directly to the lung tissues. Every respiration either supports or it discounts the perfection of lung function and lung texture—how could it be otherwise?

Two years ago we had in Philadelphia the eminent tuberculosis specialist, Dr. Sims Woodhead, of Cambridge University, England, who delivered an impressive illustrated lecture to a large audience of physicians and nurses. His subject was entitled "The Paths of Infection in Tuberculosis." The practical suggestiveness of such a title or text should never be turned down in the study and investigations by any one who would properly comprehend pulmonary consumption. Where do the paths start? In the breathing air environment. Where do the paths end? In the breathing air environment. What has opened the avenue to direct relief by fresh air treatment? The decent logic that inasmuch as the lungs, from birth till death, must depressively handle impure depraved air, just the same as lungs would handle refreshingly restorative or healthful air when surrounded by it, has unkeyed the stupidity of tagging tuberculosis to the destiny of heredity instead of to unsanitary family habit and habitat. For identity of living conditions or environment naturally, by the eternal laws that govern the impressibleness of flesh and blood to daily influences that effect health—naturally lead to similarity of physical results in families with which mere heredity itself has nothing to do. By demonstrating that clean air will successfully oxygenate the blood sufficiently to enable the blood and its nutrition to heal moderate sores or cavities in the lungs, and thus avert the early doom of hastened death, the superiority of fresh air, pure air, clean or decent air, naturally leads to the solution of the tuberculosis problem. Dr. Woodhull brought to us his exceptionally large investigative hospital experience. By his enlarged magic lantern exhibits to demonstrate post-morten conditions of many lungs that had in life been excavated in various parts by tuberculous waste, but had healed over by fibrous deposit that arrested the ulcerative process, thus proving, as Dr. Woodhull insisted, that a sanitary breathing air and abundant nutrition could and does arrest the destructive advancement of consumption. The learned doctor wabbled concernedly over getting around his "tubercular bacillus" postulate which his

fresh air gospel practically disarmed, but which he diplomatically failed to repudiate in presence of his Philadelphia auditors, who yet devotedly cruise under the swash-buckler idea of a pirate bacillus to scuttle the lungs to destruction! In itself the evidence deduced by this eminent English specialist, that fresh air treatment arrests consumption, knocked pat on the head his enfeebled bacillus dodge—though he did not seem to be conscious of that fact.

There is proof in antithesis. It is now amply demonstrated that sanitary quality of breathing air by its nature prevents and also arrests consumption—therefore, its opposite, or degenerate breathing air is the natural propagator of the great white plague among the people who develop that lamented malady. Relatively pure air is what is implied when we talk about "fresh air." Fresh air treatment for tuberculosis could never have won its common sense victory if a bacillus was the prime cause. If it is a bacillus that worms a lung into tuberculosis, of what account would be the air? When we reverse the rationale, instead of leaning on cod grease and smoke syrup to glide the smothered consumptive down the toboggin of suffering to the grave, it is coming to be understood that adequate oxygenation defies the evolution of microbes in the lungs or elsewhere, and welcomes the process of healthy nutrition which preserves integrity of physical organization. This orthodox code of daily hygiene faithfully recognized and honored in every household throughout infancy and childhood, youth and maturity to old age, would, in the span of about two generations, reduce the great white plague to but the exception among diseases. The tuberculosis is not—*not!*—contagious, or everybody in the land would have died of it generations ago! Fresh air treatment has cleared for its base the fact that tuberculosis is preventable. What then? What is preventable may be prevented—and what is prevented does not exist.

Let us take up a practical analysis. I am enabled to here detail the method of managing tuberculosis at the Linford Sanatorium, England, as written me by the author, Robert N. Stephens, while a patient at that institution in 1903—more than two years before his recent collapse by grippe. Linford Sanatorium is remote from the haunts of mankind, twelve miles from Bournemouth, an English watering place located on a cliff looking south over a bay on the Irish Channel and southwest from London. Linford Sanatorium is the first of its kind in the British Islands specially built for carrying out the "Nordrach" treatment for consumption. Linford is situated sufficiently far away from any inhabited town to be out of range of the injurious influences of aggregated population. It has a gravelly subsoil, a large amount of sunshine, and moderate rainfall—conditions that merit attention when locating American hospitals for tuberculosis. The Linford stands on a slope facing southeastward within a stone's throw of woods of pine and oak, sheltered on all sides by elevated moorlands of historic New Forest, and is afforded pure atmosphere and sheltered walks, which are the only climatic essentials for the treatment of tuberculosis disease.

After removal of the patient from the impure home surroundings in which tuberculosis generally develops, the treatment consists in a carefully systematized mode of life, including abundant and physiological diet as a prominent part. To this is added graduated exercise, with the right proportion of rest, both mental and physical, in the open air, not only to replace the wasting caused by the disease, but to form new tissues in order to build up again the weakened organism, to restore the failing vital energy, and to thus promote the process of repair in the lungs. The physicians live studiously in personal touch with those under their charge, and visit each one separately three times a day. The Linford has its own farm of thirty acres, where healthy cows are specially fed for the milk supply of the sanatorium. The buildings have been carefully designed to avoid formation of dust or smoke, and to cause patients whilst indoors to be practically in the open air, and at the same time to spare exertion to those in bed. Each of the patient's rooms has a hot and a cold water supply attached to the watshstand and to a douche bath. The heating is from a common centre. All bedrooms are fitted with casement windows. The lighting is electrical, the sanatorium having its own installation. My friend continues: "The features of the treatment briefly are: First, open air during every moment of existence. I sleep in a room with two great casement hinged or sliding windows wide open always, no matter how the winds blow or the rains fall. Second, abundant eating. The doctor sits at the head of the table and fills our plates, and we have to eat them clean. Third, taking walks twice a day, the destinations and distances being determined by the doctor, who is guided by our temperature, which we take four times a day, also by other conditions. Fourth, rest, physical and mental. We are not allowed to exert ourselves in the slightest or to bother about anything. We walk at a baby's pace, and during special resting hours after the walks we are not allowed to talk. It's curious that though I eat the greasiest kinds of food, I'm never sick at the stomach; and though we do our walks in cold and rain, and sit in regular gales of draughts, we never catch cold.

"Some really astonishing cures have been made here. Of course by 'cure' I mean that the bacilli have been driven out, or prevented from spreading, and the patient enabled to go on with his remaining portions of lung in good, untouched condition. But he must *always* be careful in selecting his breathing air. My cough is much easier and less frequent. I can control it, but some amount of morning coughing is necessary to clear out the lungs. All the lobes of one lung and the upper lobe of the other are touched; and then there's the fibrosis also; yet they say I'm a really hopeful case. My breathing power is slowly improving under a course of slow up hill walking, but I discover that I shall never be a great breather. My heart will accommodate itself, however, I'm told. When I leave here I'll continue the sort of life that I lead here. I thank you for your constant solicitude generally. Ever yours, R. N. S."

Mr. Stephens, more than two years prior to his decease, thus gives the world a glance at what is effected by sanitary air agency. From later correspondence it appears that the autumn weather at Linford and the nearest habitable town, Bournemouth, is rather more rude than is usual at Philadelphia during corresponding season. When we observe clinically we find that high winds alternating with fogs in built-up smoky and gassy towns and cities wear heavily against consumptives and cases of pneumonia; and these are supposed to have caused the hastened collapse of the case just cited. In

other connection my explanation has repeatedly been stated, namely, high winds whirl the smoke and gases from all chimney tops down toward the ground and, mixed with the common breathing air, renders it doubly oppressive. Said winds also press the chimney draughts backward, pushing the fire gases directly and frequently into the house air that stifles the consumptive, the case with pneumonia or with heart disease. Again, when fogs or drizzling clouds lying upon the earth prevail, all the toxic gases and smoke of fuel combustion, also the feculence from privies and sewage, are held condensed in the breathing air which cannot adequately oxygenate the blood, and the disabled lung or the heart must cease their struggle. Under the depressing conditions of respiration, every striving breath is an exhauster snuffing out the vital spark. High winds and dense fogs that occur in the colder season are doubly severe on the lungs because of the more than double proportion of fuel gases then present in the breathing air because of the extra house heating. Let me quote authentic records of deaths in Philadelphia briefly as illustration:

For one week in April, died of tuberculosis of lungs, 74; of pneumonia, 96.

For one week in May, died of tuberculosis of lungs, 49; of pneumonia, 46.

For one week in July, died of tuberculosis of lungs, 51; of pneumonia, 23.

For one week in November, died of tuberculosis of lungs, 58; of pneumonia, 37.

For one week in January, died of tuberculosis of lungs, 71; of pneumonia, 88.

For one week in March, died of tuberculosis of lungs, 87; of pneumonia, 123.

Blustery weather, blustery months, seldom agree with the sick. This does not, in my judgment, result because of mere increased activity of the atmosphere; but because of the filthy dust, the soot and fire gases whirled intemperately to and fro to earth—conditions that the lungs can illy contend with, respiratory relations that acutely irritate breathing organs, that smudge oxygenation, swamp the nervous energies and rapidly exhaust in lung diseases. What else is there to infest the air with like untoward results—always including inconsiderate closeness of rooms and the aggression of illuminants in the environment?

The planting of hospitals in city air, like the Phipps Institute in Philadelphia, for the study of consumption, while a benevolent accommodation, must always measure very short of the province of a pure air sanatorium for the cure of tuberculosis. City hospitals are temporary homes for the homeless poor, where they may either improve or die and furnish another post-mortem for demonstration; while a pure air sanatorium promises either healing or cure by fibrosis, but never a renewed lung where portions have softened to waste. It is wholly unnecessary and inconsistent to send tuberculous patients through the exhausting grind of long journeys to Denver or California. There may be equal purity of air found on any sunny slope a few miles outside the area of city air. But any spot chosen, to be consistent with remedial conditions, must be kept locally sanitary in management if the object sought shall be won. Yes, even then and there, as I have recently seen in a tuberculosis exhibition, special tents devised for fresh air treatment set up beguiling traps of defeat inconsiderately alongside the cots by stupid doctors who aim to obtain benefits never to be substantially realized because the plans cut off the most direct chances by cross purposes. Why? Because the doctors have curtailed their perceptions and remained blind to the primal fact that any toxin in the breathing air of consumptives is radically detrimental to the integrity of lung tissue, to successful nutrition and vital energy. The late tuberculosis exhibition in Philadelphia, under the auspices of the Phipps Institute for the study of tuberculosis, also its course of specialized lectures, proved a great advance for the enlightenment of thousands who visited the demonstrations by prepared specimens of post-mortem lungs. But my review of this instructive exhibition and also the White Haven Hospital on the mountain side so distant from Philadelphia will merit a separate paper.

1726 North Twenty second Street.

HYPERTROPHY OR COMPENSATION.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

ALL tissues possess a formative process over or above that normally exemplified, and well it is that this is so, for recognizing the fact, as we have seen in the preceding essay, that all organic progress is dependent upon a series of atrophic degeneration, and likewise that the law being universal tends to operate at times from causes dependent upon disease principles, as in intermittent fever, endemic goitre, etc., the result of the work of micro-organisms in which compensatory hypertrophy ensues in the spleen and thyroid gland, and were it not so death must ofttimes be speedy and without warning. Indeed it is largely to this principle alone that man has been raised to the head of all organisms and thereby enjoys a certain immunity from impending peril. Were I called upon for an opinion as to the greatest factor in the onmarch of organic evolution, I would unhesitatingly pronounce it that tendency or force which protoplasm possesses to increase. We have before this time spoken of the formative process, the sum of which consists of a certain vital, plastic, or constructive force in constant operation, so that the forms assumed under its influence depend primarily and in greatest measure on the specific composition and other properties of the organizable materials taken from the blood, and that these properties transmitted in the first instance from the parent to the germ are thenceforward communicated to all the nutritive materials, subject, however, to certain progressive changes, corresponding to the development and degeneration of the several tissues. It being assumed further that the taking of materials from the blood by each part for its own maintenance, depends as to quality on certain definite relations or organic affinities between the blood and the part and as to quantity on the nutrition or waste of a part. We have seen in the preceding essay that nature has raised man to the head of all organic life by the operation of a universal law (we now speak of man protoplasmically), and that ever through the gradually ascending scale she has held this law supreme; that it operates by a series of exclusion, for when an organ or part becomes no longer useful to the general economy of the whole, it is either reabsorbed, which in the formative process very likely relates to living tissues, or is cast out, which signifies its absolute death, it being necessary to make a ditinction be-

tween parts that die and those that only degenerate, for degeneration as we have before seen is not death. Those which die are cast out entire. Those that degenerate are disintegrated or dissolved, and then absorbed. We seem to have a good example of this difference in the fangs of the two sets of teeth, for while those of the deciduous ones degenerate and are transformed so as to become soluble and be absorbed, those of what we call permanent, die and are cast out entire. Now this universal law always operates in the same manner ultimately, that is, the result obtained no matter whether direct or indirect, and no matter by what process or mode it operates, the inevitable result is that related to vascularity. In the present instance being contractive and always nutritional. We have assumed that the operation of this law being progress is, and can be, but one-half of that visible phenomena known as life, not only because things cannot exist singly, but likewise, and as is well known, were contraction all that is known and relative to vascularity, organisms and especially those of a higher warm blooded type, would speedily perish, starved as we might say by their own vessels. Again it is immediately self evident, that were such a law allowed to operate in the higher animal world without a necessary governor, all phenomena would be but one sided, in fact organisms would never present to us fruition, for, if allowed to exist at all, would be dwarfed, contracted and imperfect, therefore to prevent any such disaster nature has given to all organisms and especially those of a higher animal class a directly opposite phase, viz., that of dilation or plethora, which passing over its interpretation and general operation as we find it in lower life, to man, we behold in that other great and perfectly natural phenomena, unfortunately sometimes called disease, viz., hypertrophy. Properly speaking hypertrophy is never developmental, but simply relates to growth, this being even so where it relates to numerical hypertrophy itself, and yet the law is not absolute. *The same being under all circumstances, and wherever found, compensatory.* M. Bizot and Dr. Clendenning proved of the heart and arteries that their average size regularly increases, though with a decreasing ratio of increase from childhood to old age, the weight of the heart augments, and the thickness of its walls increases. Now the reason for the same is to my mind twofold. Firstly it preserves the duality of form and function already described, and, secondly, and the thing we are in this essay particularly interested in, that because of the increasing difficulties put in the the way of the circulation by the increasing rigidity of the parts either by calcareous deposits, sclerosis, or what not, or normally by the stiffness and hardening of old age. *A normal hypertrophic safeguard compensatory.* If, therefore, I can succeed in making plain by this simple illustration the fact that not only here but throughout all the various processes and functions whereby life is maintained, there runs coincidently therewith a compensating quality or quantity, my battle will already be half won. Now this beautiful example of normal cardiac increase which is a normal and everywhere following consequence, on life principles, by which it strives to overcome, and for a long time accomplishes in overcoming, a gradually increasing mechanical constriction which corresponds to atrophy (the vascular system being simply narrowed by reason of deposits, let us suppose) is all there is in any condition whereby any organ, or part, hypertrophies.

The rule, then, concerning hypertrophy is that so long as all conditions remain the same, each part of the body after the attainment of the average size merely retains its state, or at most grows, at a certain determinate rate, but when the conditions alter so that a part is more than usually exercised in its office, it then manifests a power of renewing or accelerating its growth. Thus it is that each part has a normal reserve power of growth and development, which it puts forth in time of emergency, and which is always to compensate a loss existing somewhere within the body, therefore we should say that the power to increase, or the latent hypertrophic phenomena so universally present in organic tissue, is to be viewed as an ever watchful sentinel, firstly to hold in proper check atrophpic or degenerative evolution, and secondly to subserve, when one or another organ becomes incapacitated by taking its blood, enlarging developmently, and functionally, it therefore takes the office of the same and therefore prevents disaster. But hypertrophy to be properly understood must be studied. Indeed whether a tissue on the one hand atrophies, or on the other hypertrophies, ofttimes depends upon seemingly trifling circumstances, for while the establishment of the former depends in all cases upon less blood being supplied a part, and for the latter, more, yet the mode of its accomplishments is at all times the same, the only difference being how the same acts. Thus on the hand of a laborer is found a callus, the same being hypertrophic, and in all cases the result of discontinuous pressure, which is stimulating, and invites more blood to the part. The cuticle admits of being thickened in all parts of the body, and if for cuticle, then for muscle, and if for muscle then for bone, or gland, or vessel, or what not. We find a thickening of cuticle wherever there is pressure, the effect of which is to increase the cuticle to defend the cutis underneath, and yet not only the cuticle thickens but as we have said the parts underneath, whenever it becomes necessary to protect still deeper lying structures. It may therefore be stated as a general law that discontinuous pressure is stimulating, because it invites more blood to a part and consequently augments the same while continuous pressure is not so, but rather the opposite, because it shuts off the blood from the vessels and therefore tends towards atrophy. But we are not here concerned with continuous pressure, which belongs to atrophy, but with discontinuous, which is hypertrophic. But pressure in either case is but one of the various modes or conditions whereby is determined too much or too little blood to a part. Now as we have before noted in the case of the cuticle, is likewise true of all other tissues, for example:—in a muscle such as the heart, for when by disease of the valves, an obstacle is placed in the way of the circulating blood, and the heart as a whole, or as one cavity singly, acts with additional force to drive it onward, it hypertrophies, and this is what we find in all instances where sufficient time is occupied in the process, the same being related to growth, but this is not absolutely so, for a part may do more than

grow, it may develop itself, it may acquire new structures, or it may improve those of which it is already composed so as to become fit for higher functions and the exercise of greater power. For example:—in the most ordinary hypertrophy of the heart, the muscular tissue is developed to more robustness and its fibres become not only larger or more numerous, but firmer, more highly colored and stronger. In the pregnant uterus such fibres are formed as are not seen in the unimpregnated state, they are indeed not a new kind of fibre but are so different in size and shape, and so much more powerful than those that existed before, that we may justly speak of them as developed, and this change by development which in pregnancy is natural, may indeed be imitated in disease, when by the growth of fibrous tumors in it, the uterus attains the size, the structure, and even the full capacity of action, of the pegnant organ. In several such cases the imitation being so perfect that the uterus has at length emptied itself as in the normal process of labor, the tumor being expelled entire and complete by its contractile power. A similar change by development and growth of muscular fibre may occur in the gall bladder, the ureter, etc.

Now these few examples of which any part or organ of the body might furnish more under appropriate circumstances, are always as we have before asserted, compensatory. That the body may live, it is sometimes necessary that parts thereof should die, this by a process of degenerative atrophy and witnessed in early life by the functional suspension of glands, but that degenerative atrophy should not run amuck it is in all cases safeguarded by an exactly opposite phase or condition, viz., hypertrophy, which by its plethoric sway, at all times mitigates and many times aborts so-called disease. On this distinctive line rests the mark of functional disturbance, and actual disease, but it is not my intention at this time to take up this part of the discussion, tempting as it is, for if in the present instance, I can succeed in making plain that degenerative atrophy and compensatory hypertrophy, in so far as they themselves are concerned, are not disease, but simply a plan of nature whereby the body may grow, and having grown, live. A safeguard for the maintenance of full and vigorous health, serving to remedy for a time at least the ill effects of structural decay, and again adding to life by the very rhythm produced.

The amplified healthfulness of the formative process exercised in hypertrophy, is testified to by reason of its requiring a full measure of all the conditions of ordinary nutrition. It needs healthy and appropriate blood, and one of the most interesting studies is to watch the hindering influence set in the way of disease, in the occurrence and progress of hypertrophy. In some cases death being clearly the consequence of impairment of the blood which can no longer maintain in the hypertrophic organ the exceeding growth required for its increased functions, or perhaps by what is more familiar to ruptured compensation.

In hypertrophy of bone we find as a rule that it is a secondary process ensuing in consequence of change in a part with which some bone is intimately connected. Just as in their natural development and growth, the bones of the skull are joined in adaptation to the brain, and those of the limbs are framed to fitness for the action of the muscles, so in disease they submit in their nutrition to adapt themselves to the more active parts. Thus the skull enlarges when its contents do, and the bones of the limbs strengthen themselves as the muscles inserted on them become stronger and more active and they do this in adaptation to the force of the muscles, and not merely because of the movements they are subject to, for no extent or force of passive movement would prevent the bones of a limb whose muscles are paralyzed from suffering atrophy.

The process of enlargement in these cases is often one of simple growth, and that indeed to a less extent than it may seem at first sight, for it is very rarely that the due thickness of the skull is attained, while its bones are enlarged in the extension of their superficial area. Hence the weight of an hydrocephalic skull is not much, if at all greater, than that of a healthy one, a large parietal bone for instance measuring nine inches diagonally, and weighing four ounces, while the weight of an ordinary parietal bone is little less. Indeed it is interesting to observe the symetrical placing of the wormian bones by which the extent of the skull is in a measure made up. They show how the formative process though thrown into straits and difficulties conforms both in growth and development with the law of symmetry. In its formation the skull adapts itself to the form and size of the brain, or rather, of its membranes, the thickening of the same being effected by the gradual remodelling of the inner table and diploe of the bones of the vault, so that, although the exterior of the skull may retain its natural form and size, the inner table grows more and more inwards, as if sinking towards the retiring and shrinking brain, not thickening, but simply removing from the outer table and leaving a wider space filled with healthy diploe.

Again it is a fact of singular interest that this thickening, this hypertrophy of the skull, most commonly, if not always, takes place especially, and to a greater extent than elsewhere, in the parts of the bones in and about which ossification commenced in the fetal state, as if, we might say, some of the potency that of old brought the fetal membrane of these parts first into the development of bone, and was always afterwards concentrated in them, or as if a reserve power of growth had its seat in the same centres where was formally the orginative power of development. This pecularity of the centres of ossification is the more remarkable when we remember that in many cases the thickening of the skull takes place in persons far past the middle period of life, indeed it may happen in very old age, and may give evidence of that precision of assimilation, which continues throughout life, characteristic distinctions among portions of what we call the same tissue. Cases are very rare in which hypertrophy of any other bone of the body than those of the skull occur in connection with what is called disease, for the bulk of most other bones is principally determined by the activity of the muscles fixed on them, and a morbidly excessive action of the muscles sufficiently continuous to produce hypertrophy of bones, is seldom, if ever, met with. In the great majority of cases the hypertrophy of muscles whether voluntary or involuntary is the consequence of an increased obstacle to their ordinary action, against this obstacle they exert extraordinary force and this in-

sue. Strictly speaking then it all resolves itself into forces, and their proper or improper adjustment, for, inasmuch as frequent action of muscles unless it also be forcible, does not produce hypertrophy, the heart though it may act with unusual frequency for years, yet does not in that case grow larger, and the muscles of the hands are not generally so large in mechanics who use great celerity of action, as in those who work with great force.

And thus we find that hypertrophy is in all cases related to vascularity, being the opposite phase or condition of atrophy, in which it fulfils the duality of all physical phenomena, and directs our attention to whatever relates to an increased blood supply. Indeed this is beautifully borne out in the central vascular system itself, for it is quite legitimate to liken the systole of the heart to blood flow, and its diastole to blood ebb, a duality, which on the one side is plethora, hypertrophy, and increase, and on the other anæmia, atrophy, and decrease. For hypertrophy to occur hyperæmia must be prolonged or frequently repeated, also the cells of the part must possess ability to grow, for apparently no hypertrophy would prevent a thymus from atrophying, or cause hyperplasia of adult ganglion cells. When muscle contracts against an increased load, it hypertrophies, as is seen in training, unless the load is too heavy, when atrophy may ensue, but to these exceptions we will have occasion to recur later, as we are now searching for the whole law, while nevertheless we may later lend ourselves to attempt an explanation of why true giant growth is more in the direction of length, than of breath, or to hypertrophy of half the body, of parts of limbs, as fingers or toes, (such parts on dissection being found to be normal except in size) or such cases of false giant growth in which the connective tissue alone is increased, and the part misshapen, the hypertrophy of lymphatics, or vessels, whether they be cysts, or nævoid.

Having seen therefore, that while on the one side of vascularity we have atrophy, a primary force chosen by nature to raise organisms to the exalted position they to-day hold, and that the same is related to a lessened blood supply to a part, and that on the other we have hypertrophy, which is always a compensating force, and the very opposite of the former, and related to increase, by reason of a larger blood supply, both belonging as we might say to the body proper, it has lately occurred to us that possibly a like compensating force may run coincidently with disease itself, that is, that possibly the child escapes the exanthemata and perishes as a youth from scarletina, that possibly we borrow from Peter to pay Paul, and, at any rate it has always seemed to us that physical compensation even to disease is a far too little understood subject. For instance, Dr. Thomas J. Mays in making inquiry as to whether registration and disinfection is a successful method of combating pulmonary consumption has the following to say, viz.: "One of the striking characteristics of these charts is that, with very few exceptions, the consumption tracing pursues a general descending course; while the pneumonia tracing on the whole makes a rise." We trust we will not be considered presumptious should we draw the physician's attention to the fact that disease undoubtedly runs in cycles. That is, that it certainly observes a certain periodicity which in influenza is familiar to all, *but who would be so rash as to say that it is limited to this or that disease and not true of all diseases,* at least in so far as it relates to causes acting from without the body? Where is the physician who does not readily recall the cycle of measles in his practice, the years in which they occur in his immediate territory, and the years of their absence, the same not being the result of exhaustion of the soil? Then again, and as we have in former essays spoken of, the entire *disappearance* of a certain disease at one end of the cycle, and the *appearance of an entirely new disease at the other,* and yet from the length of the periods in the latter instance, the same may not occur in the life history of any single practitioner, nor indeed of many, and yet as surely occurring. Written in 1903. Dr. Mays continues (and here let me remark in passing that these statistics were not gathered with any thought of their relation to medical compensation):

"A very interesting point relative to the great predominance of pneumonia during the last ten years of the record, develops at this stage of the investigation. While it must be admitted that a part of this increase is due to the marked prevalence of influenza, during the latter eighties and the early nineties, yet, since this disease has practically died out, it is not at all probable that its influence persists up to the present time, and hence this augmented mortality must be due to other causes. In order to find out just what influence this theory had on the prevalence of this disease, I sent out a letter of inquiry to the boards of health of many of the large cities of the United States (which he names) and a prompt reply was received from all of them. These districts are called prevention and non-prevention localities. Now then, says he, "in all of the twelve prevention localities figures and health board statistics prove that there has been a decrease of phthisis, and yet on the other hand they likewise prove a supplemental and excessive rise in the pneumonia rate in the same localities, and during the same time. Why is it that in the last twenty years this disease increased only 10.45 per cent. in Haverhill, Mass., a non-prevention locality, while in Worcester, a prevention locality and only about fifty miles away, it increased 46.66 per cent. in the same time?

Why is it that in the District of Columbia, a non-prevention locality, pneumonia actually decreased 33.33 *per cent., while in Baltimore, a prevention locality, it increased* 23.58 *per cent. in the same time, recognizing as we must that both places have a like climate, and are only forty miles apart?* In short, and this fact to my mind is a startling thing, why is it that in every one of the prevention localities which represent the greatest cities of our land, places where statistics are accurately kept, and where opportunities are unparalleled for gaining the same, that in just such measure as tuberculosis has been stamped out, or reduced in mortality, by measures of prevention, in almost equal measure *pneumonia* has arisen to take its place? 600 *per cent. higher than where tuberculosis is left to work out its own course.* And so, with never a word of censure for those men who nobly strive from day to day for the entire extermination of disease, let

us also remember that there has dawned upon the physical horizon a law of compensation. *Dawned, have we said,* and yet not new, but coincident with life itself, *compensating* all of visible phenomena which in the higher physical is vascularity. To the systole adding power, to the diastole subtracting power or vice versa, while to diseases arising from without the body ever guiding and guarding.

THE TREATMENT OF NEURALGIA.

BY W. C. ABBOTT, M.D., CHICAGO.

THE treatment of any paroxysmal malady naturally falls into that of the intervals and that of the paroxysms, and we should begin with the former when possible.

In all chronic neuroses the first essentials are the removal from the blood of all toxic elements, and the maintenance of an adequate nutrition. Consequently, we commence by administering say half a grain of calomel, at bedtime, in four doses, or a few doses of calomel, podophyllin and bilein comp. (calomel, gr. 1-6; podophyllin, gr. 1-6; bilein, gr. 1-12), followed by a dose of some good saline laxative next morning on rising, sufficient to completely clear away all the contents of the bowels. If there are evidences of "biliousness," with or without insomnia, give, in addition, from gr. 1-6 to ½ of pure emetine *after* going to bed, with the usual precautions to prevent vomiting. Swallow the dose dry, with no liquid, and lie perfectly still for half an hour or till asleep. The granules or tablets, whichever form may be selected, dissolving slowly will be absorbed as rapidly and will cause no nausea. Keep the alimentary canal clear by such methods during the treatment.

Have the urine collected and tested every twenty-four hours for a week; if there is a marked deficiency in the excretion of solids, this must be remedied. The diet must be regulated to the needs and the digestive capacity. Caffeine, in full doses, should be given to debilitated cases, veratrine to plethoric, and colchicine to the gouty or uricacidemic. Nitric acid is especially useful for oxalurics. All these remedies increase the excretion of urinary solids. Boldine acts beautifully as a diuretic eliminant and is usually indicated.

Much may be done in the way of preventing attacks by attention to personal hygiene—dressing in wool next the skin, hardening the skin by the daily application of cold water, active exercise, regular light and plain meals, and the avoidance of known exciting causes. Anstie insisted that a neuralgic required more food than other persons; and advised cod liver oil, and easily digested fats in excess. This is useful—to those who need it; but in our experience eating beyond actual need is often the cause of the very condition which we are called upon to contend. A layer of fat beneath the skin certainly protects the underlying nerves, but in excess it is objectionable. A wig sometimes makes amends for the loss of hair and materially aids in preveting paroxysms.

Counter-irritation over the foramina, where the nerves may be pinched, is useful by lessening the bulk of the tissues that pass through them. A blister over the sacro-sciatic notch has given quick relief when one applied the whole length of the nerve had failed. Dry cupping to the same locality is often most useful.

The nutrition of degenerated tissues may be improved by the use of zinc phosphide in doses of gr. 1-6 four times a day, removed as far as possible from the meals and continued for one week out of each month. During the remainder of the month, the effect may be sustained by the use of neuro-lecithin. This method avoids all danger of toxic effects from too prolonged use of the chemically active phosphide, and has proved quite effective in the writer's hands. The neuro-lecithin (lecithin derived from the brain and spinal cord) is one of the best nerve builders we possess.

The employment of strychnine, arsenic, iron, quinine and other tonics, in the intervals, is commendable when either of them is indicated. The indiscriminate simultaneous exhibition of everything bearing the name of "tonic" is a disgrace to modern therapeutics.

One of the most effective means of relieving the neuralgic paroxysm is the galvanic current from about five cells. This should be applied for a few minutes over the course of the affected nerve, when the pain will cease; as it recurs the application must be repeated till the force of the attack has been expended (controlled). The writer has repeated the application thirty times before final relief was secured—but, again, he has thus broken up, in a few hours, paroxysms that had endured for months and, through unwise treatment, had made the victim a morphine habitue.

Acetanilid is useful in acute attacks occurring in robust individuals, either with or without fever. Give grs. ij to v, guarded with caffeine and accompanied by soda, two to four doses one hour apart; if relief has not then been attained other remedies are preferable. This is one of the legitimate uses of this much-abused drug, which should never be allowed to get from the drug store into the hands of the laity.

Antipyrin succeeds best in the pains of ataxia, and is somewhat less depressing than acetanilid—and less effective.

Atropine is a powerful remedy for sciatica, lumbar-neuralgia, uterine and spinal irritation, dysmenorrhœa, ovarian and intercostal neuralgias; also for tic douloureux. When the patient's skin is shrunken and cold, the pulse suppressed and tense, atropine will return the blood to the skin and relieve the internal hyperemia. Give, to an adult, gr. 1-500 in hot water, every fifteen to thirty minutes—till the skin reddens slightly and the mouth is dry; if relief has not then been secured, this is not the remedy required; but there are few cases that will resist this king of spasmodic pain. A dose of gr. 1-100 injected close to the affected nerve will frequently conquer the most stubborn attack. It will, however, not remove hyperplastic tissues compressing a nerve trunk. Its action is simply through the vasomotors to drain the part and reduce the pressure causing the pain.

Aconitine is indicated in neuralgias attended by a hard, wiry pulse, throbbing headache, evident displacement of blood suspending circulatory equilibrium—forms of neuralgia usually due to catching cold or the checking of discharges. Of amorphous aconitine, give gr. 1-134, in hot water, every five to twenty minutes, or until there is enough effect on the pulse to show full physiologic action, then less frequently. Associated with quinine arsenate, or the hydroferrocyanide, in tonic dosage aconitine is useful in all periodic attacks.

Bebeerine, from the nectandra and pareira brava, has been recommended as a remedy for periodic cases,

but this alkaloid, having unfortunately acquired repute as a substitute for quinine, we have never investigated with a view to establishing the differences in their therapeutic powers, Bebeerine, however, is more astringent to relaxed connective tissues than is quinine, standing between the latter and berberine. This would indicate its value in relaxed conditions and during convalescence. The tonic dose is about a grain before meals.

Brucine has been advised in hysteric cases, in intercostal neuralgias, and for nervous erethism. This alkaloid possesses marked local anesthetic powers, and is usefully combined with cocaine when the latter does not work well. Otherwise brucine resembles strychnine, though milder in action. The dose is about gr. 1-67 every five to fifteen minutes till evidence of tonic action is manifest. Locally a 2½ per cent. solution may be employed with equal parts of a similar cocaine solution.

Caffeine has also been injected along the course of the painful nerve with asserted local anesthetic action, but does not equal brucine. Caffeine is useful internally for sciatica and other deep-seated neuralgias and for affections of the brachial and cervical plexuses by injection. The dose for hypodermic administration is from one to five grains, made soluble by the addition of sodium salicylate. Both must be chemically pure—the salicylate, if contaminated, will make the solution pink or even black. The solution may be made by dissolving thirty-five grains of sodium salicylate and forty grains of caffeine in distilled water to make two drachms. This gives a grain of caffeine to three minims or drops. Care must be taken to instantly wash out the needle of the syringe after injection, as this solution quickly clogs the small aperture. For internal use, caffeine valerianate may be given in doses of gr. 1-6 to j, every few minutes. Other salts do well in hot water; same doses.

Cannabis is useful for neuralgic headaches and in visceral forms. The dose of a good extract is gr. 1-6 every half to one hour till effect or till disturbance of the sense of time or space indicates toxic action. The want of a reliable and uniform preparation of this curious drug has hindered its use. Its true remedial principle has not, as yet, been isolated.

Capsicum is useful in cases developing after the patient has ceased the habitual use of alcohol or morphine; and when the vital depression extends to the stomach and absorption is stopped. A small dose—gr. 1-67 to 1-15—may be added to other remedies given by the mouth.

Arsenic is effective as a means of breaking up neuralgic consequences, malarial and otherwise; for angina pectoris and in the neuralgias of frigid, anemic amenorrheic women. Of the preparation selected small doses should be given and continued for several weeks. In angina pectoris the writer prefers arsenic iodide, gr. 1-67, four times a day and continued for a year if necessary.

Cocaine gives relief in cases due to overwork, mental strain, anxiety, apprehension, grief or other overmastering emotion; and in those stopping narcotic habits. It is a dangerous remedy, especially to the neurotic. The patient should never be permitted to know what he is taking and it should not be long continued. Disguise it effectually, and in most cases replace it promptly with caffeine or brucine. The dose is gr. 1-6 by the stomach, repeated hourly to effect in the paroxysms.

Colchicine has a wider field than is generally believed. It is the remedy for the plethoric and the uric-acidemic; for attacks following indulgence at the table (post-Thanksgiving headaches); or from catching cold; and wherever there is marked throbbing of the head. The acme of migraine usually presents this indication. The dose is gr. 1-134 to 1-30, in hot water to hasten its phenomenally slow action, and repeated in two hours if necessary. This drug is best given in a single full dose when we have learned the patient's reaction toward it.

The phosphate of copper is said to possess a specific power in relieving pains in the fifth nerve. This has also been claimed for aconitine and for gelseminine. The differentiation has not been cleared up, and seems doubtful. Luton suggested this salt as a remedy for tuberculosis, and it may be specifically valuable in the neuralgias of these cases. The dose is gr. 1-6 every two hours for nine to twelve doses a day.

Croton chloral relieves pain in the scalp; it has given me most satisfaction in relieving the tenderness ("hair-pulling") remaining after the subsidence of a neuralgia of this region. The dose is a grain every hour till relief.

Cypripedin and scutellarin are mild but efficient nervous sedatives or rather calmants. They are useful for the depression attending these attacks; an attempt at differentiation has been made by assigning scutellarin to cases where the pupils are dilated and cypripedin to those showing contraction. The dose of either is from gr. 1-16 to 1, in hot water, every hour.

There is no place in the treatment of neuralgia, a malady of depression, for any of the bromides unless it be camphor monobromide. This may be employed in doses of one grain every half-hour during the early evening, to secure sleep in prolonged attacks or after their subsidence.

Delphinine has been advised in obstinate facial and cervical forms. It combats the vasomotor spasm and any irritation or excitement in the genital sphere, and may be employed in such cases. The dose is gr. 1-67 hourly.

Digitalin can only be considered an accessory, but has been advised in sciatica and aural cases. It is often indicated. Its administration should be regulated by the tension of the pulse.

Emetine may be given to relieve the stomach of a fermenting mass and to stimulate the liver—a grain at bedtime. Sometimes the physician who has been vainly administering direct analgesics is mortified when an emetic reveals and removes the cause of the suffering.

Ergotin proved useful in one case of obstinate gastralgia with pulsation of the abdominal aorta. It was given hypodermically in doses of gr. iij three times a week. The application of this remedy might be amplified. Basis of indication, physiologic action.

Eserine has been applied with good effect for neuralgias of the eyeball; the ordinary solutions of the oculist being used.

Gelseminine subdues sexual irritability and is applicable to neuralgias of this tract. It has been advised for dental pains also, with less evidence in its favor. Ovarian and testicular pains are quite certainly controlled by this agent in moderate doses—gr. 1-250

every half hour, in hot water or hypodermically, until relief follows or the droop of the eyelids signifies that the limit of its useful administration has been reached. If relief has not then been secured, the condition diagnosis has been erroneous.

Iodine may be employed for a syphilitic taint, or to stimulate the absorption of encumbering débris along the course of the affected nerve. The latter indication is apt to present itself in any inveterate neuralgia, whether the painful points of Valleix are demonstrable or not. Massage is a useful adjuvant when exudative masses are found along such nerves as the sciatic. The following is the most powerful absorption stimulant combination the writer has ever employed: Arsenic iodide, gr. 1-67; mercury biniodide, gr. 3-67; iodoform, gr. ½; phytolaccin, gr. 1. This dose may be taken before each meal and at bedtime, for weeks if irritation of the eyelids does not give the signal for its decrease. In the iodides of mercury and arsenic we have our most powerful absorbents; the arsenic acts as a safety valve, directing the irritation to the eyes so that the first sign of overdosage will be there manifested. Iodoform enhances the iodine effect and prevents gastric irritation; while phytolaccin, by stimulating the lymphatic glands, relieves the other absorbents of that duty and leaves them to exert their whole force on the disintegration of encumbering debris which should always be promptly disposed of by saline elimination.

Glonoin is the most active agent we possess to dilate the arteries and acts even more quickly when dissolved in the mouth than it does when given hypodermically. It is indicated when the cutaneous vessels are spastically contracted. Atropine should be added to prolong the effect. Whenever any remedy is administered whose action it is desirable to accelerate, the addition of glonoin, by opening the vessels, secures this object. The ordinary doses are too large—glonoin, gr. 1-250, when of good quality, will sometimes cause unpleasant cerebral fulness, and half this dose repeated every five minutes is preferable.

Macrotin is available for ovarian and uterine pains, for spinal irritation and, possibly, for fifth nerve neuralgias. The dose is from ½ to 1 grain, in hot water, every half hour till relief or nausea occurs.

The injection of solutions of osmic acid along the course of an affected nerve has been employed instead of excision—the acid destroying the tissues. This procedure we do not recommend. We are not believers in the destruction of diseased tissue, preferring to cure it; and when such a measure is unavoidable, we prefer clean surgery to the application of an agency less readily limited to desirable effect. The 1 per cent. solution in distilled water is employed, of which a few drops may be injected. Don't do it!

Phosphorus is probably best represented by zinc phosphide. This is an effective remedy for degenerated nerve tissue; and, as Anstie claimed, true neuralgias probably depend on degeneration of the posterior roots of the affected nerves. The writer commenced to employ this agent in the painful neuralgia attending herpes zoster, obtaining immediate and permanent relief from it. Since then it has been employed whenever this degeneration has been diagnosed, with similar good results.

There is another indication for zinc phosphide; in breaking up severe and obstinate attacks. If the therapeusis of neuralgia is timid and tentative, habituation to the drug will ensue and relief be imperfect; whereas, if the remedies are powerful and thrown in vigorously in maximal doses, the effect will be decided. Quinine, grs. 2; zinc phosphide, gr. 1-6; strychnine arsenate, gr. 1-30; ext. cannabis, gr. ½; given together and repeated every four hours is a model formula for this indication. The full adult dose of zinc phosphide is gr. 1-6 four times a day, for one week out of each month. It is unsuitable for cases due to cold or to inflammation, or for plethoric persons.

Quinine is employed to forestall attacks of periodic neuralgia, and for supraorbitals. A full dose—grs. 15 of the bisulphate—may be given six hours before the expected attack; or (and usually better), the arsenate or hydroferrocyanide in small doses every waking hour. The small dose of the latter salts will usually produce best results.

No one quite appreciates the value of salicylic acid until he administers it in doses of gr. 1-6 every half hour. The constant instillation of this minute dose prevents the growth of micro-organisms and ferments in the stomach, far better than a bulky dose does given at long intervals. Cases dependent on such fermentation, on uric acid, rheumatism, etc., and "tic" when attended with acidity, are amenable to this agent.

Solanine is a drug with a future. It lessens the irritability of the sensory nerve-ends, gives tone to the capillary walls, and relieves hyperemia of the nerve centers. In sciatica, gastralgia and other neuralgias it has replaced morphine with advantage, proving effective without the disastrous possibilities following the use of opiates for recurrent pain. The dose of solanine is gr. 1-12 for an adult every hour till irritation of the fauces (dryness) denotes the limit of its therapeutic benefits. Solanine is a very promising remedy in the treatment of epilepsy.

Strychnine, alone or associated with hyoscyamine, glonoin, or both, ranks deservedly as the best all-around remedy for neuralgia, both for breaking a paroxysm and for preventive medication during the intervals. It is especially useful in visceral forms, for those dependent on sexual and other excesses, and whenever there is relaxation of tissue or languor of function in evidence. The various salts are to be applied as indicated; the arsenate for most cases, the hypophosphite when developmental nutrition in the young is obviously at fault; the nitrate for alcoholics and when the renal elimination of solids falls below normal; the valerianate for speedy effect and when nervous equilibrium is lost. The dose should be arranged with scrupulous care. Many persons can bear no more than 1-67 gr. every two to four hours; some have taken with advantage a grain within twenty-four hours. The dose must be gauged strictly by the effect, the pulse-tension being perhaps the readiest indication. Strychnine may be continued with advantage for a month, rarely longer, with intervals of withdrawal, after which it may again be resumed if still indicated.

When the pulse is hard and wiry, the patient plethoric, the heart hypertrophied, the renal or other elimination so markedly defective that convulsions are possible, the remedy is veratrine. This agent relaxes the vascular tension with certainty, the action being prolonged to any desirable period by careful dosage to effect. Muscular pains and soreness subside under this drug. It acts on all the eliminants, kidneys, skin and liver; and as there is a toxemia present in very many

if not most cases of neuralgia the indication for this agent occurs far more frequently than is suspected by most physicians. Veratrine should be given to adults in doses of gr. 1-134 freely diluted, every half hour till nausea or softening of arterial tension denotes full useful effect. If acute or subacute gastric catarrh is present, or if the patient is very susceptible to the local irritation of veratrine, there will be manifested a sense of heat defining the limits of the stomach; contraindicating the further use of the remedy by this route. The combination of atropine or hyoscyamine with veratrine, will often be found peculiarly effective when the cutaneous vasomotor spasm is marked and elimination low. Strychnine in broken dosage and elimination always indicated.

In the foregoing outline, the term "neuralgia" is employed in the widest sense—rather etymologically than pathologically—as it appeals to the clinician in this way. It is nerve pain he is called to relieve; and the institution of effective therapeusis cannot be too prompt for the suffering patient. The pathologic diagnosis may wait. Relief must not!

From this long list of remedies, the reader may judge of the wealth of our resources for the relief of nerve pain. As we use and study these uniformly acting agents it is evident that most important discrimination, as to their applicability in various conditions, are to be made. While men gave conglomerations of them without much discrimination, such accurate differentiation of their action was impossible. Nearly every prominent alkaloid is a member of a group of closely allied agents, which are at present only known to "resemble" it in a general way, but which will undoubtedly prove to possess special properties of value when studied. We know, for instance, that brucine possesses a local anesthetic power not enjoyed by strychnine; but what about thebaine, laudanine, calbarine, gelsemine and the rest of the tetanizant group? We know little or nothing of them beyond their general resemblance to strychnine. The study of such groups, under the conditions presenting with modern physiology, may be expected when the therapeutic revival we advocate becomes general.

Neuralgia has been tersely defined as "the cry of the injured nerve for mercy," and it is well said.

Neuralgia, as it usually presents, is a symptom of long continued error in the internal treatment of the body so crying out; therefore, above and beyond all measures for reconstructive relief, is the necessity for removal of cause and the elimination of offending débris—clean out, clean up and keep clean!

The Borderland of Insanity is an important subject considered by Savage (*Brit. Med. Jour.*, Mch. 3, '06), who shows that there are nervously or mentally disordered people who should nevertheless not be classed as lunatics. The insane who are not dangerous to themselves or to society should have much greater freedom than they enjoy. There should be some system of notifications as well as of certifications. For some patients complete control is needed: others should enjoy comparative freedom and a natural return to a consistent simple life, with plainer food and more regular occupation. Rowe has contributed a valuable article on this subject, which we have considered editorially. (Incipient Insanity, August, 1905.)

THE VALUE OF VARIOUS NEW FORMS OF TREATMENT.

BY A. R. WILLIAMSON, M.D.

PART II.

To the average doctor the only safe guide, in interpreting disease phenomena, is to find some evidence which can be recognized by the eye, or, if this is impossible, to find at least some evidence through which we may infer the existence of circumscribed and localized lesions: Virchow defended this principle, being willing that it should be interpreted with great latitude, but insisting that, in some sense, every form of disease was to be thought of as a morbid process running its course among limited portions of the tissues and organs. Putnam believes that this conception is in reality inadequate to the completion of the task and needs to be supplemented by another, which recognizes, as forming an integral part of each process classified as disease, a great variety of reactions on the part of the organism as a whole, or at least of portions of the organism, not implicated at all in the primary lesion. These adaptive or compensatory reactions can be spoken of as "physiologic," and the extent to which the organism may take part in them varies, of course, widely. They may even be so widespread, and may overshadow the primary lesion so completely that it is customary to speak of them rather as changes of type than as pointing to disease; but from this change of type, to such conditions as those which follow castration or the removal of the thyroid gland, and even to those in which profound changes of character and type occur, the change is produced gradually. Should this argument be valid then we obviously cannot expect to depend upon anatomic evidence for giving all the information needed with regard to the disease, but must study the genesis of symptoms as well, even though they are in reality evidences of healthy reaction rather than destructive processes. Jackson has long stood as a pioneer in this study of the genesis of symptoms which may be termed "physiologic methods in disease study."

In this connection it is interesting to see why we give drugs at all. Goodhart, before the British Medical Association, pointed out that we administer drugs not only to cure disease, but for many other reasons; drugs are often given, not because the disease demands one, but because the patient is not happy until he gets it; maybe he is not happy even then. Again they may be given to hide our ignorance or to mark time, while we watch and wait; and we often give drugs as an experiment in the expectation that they may do good. It is this individualism in man that constitutes the great barrier to the evolution of any system of medication, it follows that each new patient who demands treatment is more or less a case for experiment; and it is by experiment of this qualified kind not only that the value of drugs is established, and new power gained over disease, but by which an increase of knowledge of disease itself is obtained. The cure of disease is always the fundamental object; but with this should come the alert eye to watch the deviations from the hypothetic normal which the individual resistance, or the drug in its action, may bring out. All treatment by drugs must be more or less of an ex-

periment, and it is this fact that explains the enormous number of new drugs daily poured upon us. Many an ailment that afflicts mankind badly needs a remedy, for which, as yet, no remedy is opportune; and who knows but what in each new drug some human ill may fine its cure? It is well known that diseases run in fashions, and there are fashionable drugs which, while the sun shines upon them, are the darlings of Society.

When will we forget the boom of the anti-pyretics? A few of them have remained to us for other purposes; but as anti-pyretics, they are gone. It is true that they are not by any means valueless when given appropriately, but they were rushed far more than they were worth, and they are now buried by a corresponding reaction.

Recent researches have shown that digitalis is far from being a simple drug; for example, five glucosides have been isolated from the medicine: (1) Digitalein; (2) Digitoxin; (3) Digitonin; (4) Digitalin; and (5) Digitin; all oxidizable substances, they yield, as the result of their oxidation reduction heat, carbonic acid and water, but only four have active influence on the animal economy, and while three have actions in common, the fourth is absolutely antagonistic. Porter, after long study, decided the chemical composition of digitalis to be complex, some of its active principles antagonizing others. The various preparations of digitalis differ widely in their composition and action. The so-called cumulative action of digitalis is due to its contracting the arterioles and shutting off nutrition. It is both a useful and a dangerous remedy, and has a very limited range of usefulness. It is of use only in lesions of the mitral valve, and then only for a short time, and should be discontinued as soon as these have been overcome. It is of value as a diuretic only where there are low arterial tension and engorgement of the kidney. Digitalis decreases the excretory action of the normal kidney and impairs its nutritive activity.

At a meeting a few years ago of the New York Neurological Society in the discussion of electrical reactions and their value in diagnosis and prognosis the following conclusions were reached: The value of electricity as an accessory method in diagnosis and prognosis of disease of the peripheral nerves is not so universally recognized as its importance demands.

The result of this procedure often furnishes corroborative and conclusive evidence where only a provisional diagnosis has been made. The necessary technical skill in successfully pursuing such investigations and correctly interpreting the result can only be acquired through special study and practice. The use of faradiac current alone is quite sufficient for diagnostic purposes. As a rule the galvanic current is supplemental to the faradaic and in the absence of faradaic irritability in nerve and muscle it is of the greatest service in prognosis. The discovery of the reaction of degeneration is not an esential feature in the diagnosis as to the situation of the lesion.

The peripheral nerve fibres possess an inherent power of regeneration which seems almost unlimited, the length of time required for the completion of the regenrative process varying from a few weeks to seven years or more. Therefore, in severe forms of injury, the cause, degree, and character of damage to the nerve are often of greater importance in prognosis than the demonstration of the reaction of degeneration. The presence of reaction of degeneration, or partial reaction of degeneration, is not incompatible with the preservation of motility in the same area. This paradoxical condition has been found in cases of lead poisoning and a few others, but thus far the cause has been inexplicable. Strong currents are only rarely necessary. The weakest current that will produce a distinctly perceptible reaction is all that is requisite. A decrease or disappearance of faradaic irritability in nerve and muscle simply denotes an interference with the nutrition in the course of the motor tract between the multipolar cells in the anterior horn and the peripheral nerve distribution. It does not enable us to judge of the nature of the pathological process. The character of the reactions does not differ, whether the lesion is situated in the cells of the anterior horn, the anterior nerve roots, the nerve trunks, or their ultimate distribution. The same rule holds good in reference to the various cranial motor nerves and their nuclei, such as the facial hypoglossal and spinal accessory nerves. When the faradomuscular irritability is lost, no reaction can be obtained by a rapidly interrupted galvanic current. The secondary current from an induction coil is the one generally used in testing faradaic irritability. Owing to its high electro motive force, the resistance encountered in the moistened skin may be disregarded. The difference in the poles of the faradaic current is only a relative one, and cannot be determined by the usual tests as applied to the galvanic current. The electro motive force in the secondary coil is greater at the "break" than at the "make." The electrode that is felt to be stronger in its action is usually considered as the negative or so called "faradaic cathode." In some apparently healthy individuals the musculo spiral nerve fails to react to strong currents applied with the "faradaic anode," while a comparatively weak current from the "faradaic cathode" calls forth a quick response. In a case of undoubted peripheral paralysis the faradaic irritability may be preserved, but it almost invariably requires a stronger current to produce muscular contractions than upon the healthy side (quantitative decease). The character of the muscular reaction demands attention. A slow and labored contraction associated with decrease in faradaic irritability denotes degenerative changes. The faradaic irritability may return in persistent cases of peripheral paralysis without any perceptible improvement in motility. Electro diagnosis is inapplicable in paralysis of ocular muscles. When the farado muscular iritability is lost upon skin excitation its presence may be demonstrated in the muscle for a longer time by means of acupuncture. If electricity is to be of any service in ascertaining whether the nerve trunk has been divided or not as a result of traumatism, the examination must be made as soon after the injury as possible. We can then determine at once if special surgical interference is necessary. Should two or three weeks elapse before such examination, it will be impossible to state whether the absence of reaction is due to traumatic neuritis or to complete division of the nerve. Exploratory incision would then be called for. The tests with the galvanic current require adequate apparatus and a working knowledge of the relationship between electromotor force, resistance and current strength. They also require much time, patience and perseverance;

hence their unpopularity."

While on this subject the views of Rockwell are interesting. He believes there is a tendency to underestimate the general therapeutic utility of the faradaic current, for its quantity is so small as compared with the current direct from the cells, that to mechanical influences alone are attributed whatever beneficial effects follow its use, and therefore it has been urged that other mechanical methods—massage and contrivances for producing rapid vibratory movements—are just as good. This is due to a mistake as to the real action of the faradaic current, as well as from a restricted practical experience in its use. A thorough general application of the faradaic current brings relief to muscular tire after prolonged activity, and an increase in the flexibility of limbs that have become sore and stiff after the rest following excessive and unacustomed muscular exertion. In studying this result we know that mechanical effects are undoubtedly important; not as shown by vigorous muscular contraction, but through molecular agitation sufficient to give passive exercise to both the superficial and the deeper tissues. In such cases cell exhaustion with circulatory sluggishmess exists, and a deposit of the toxic products of metalbolism, all which conditions are more or less benefited by the mechanical effects of the current. The faradaic current is now applied with such admirable results in chronic congestion and induration of the uterus; the blood flow in the congested organ being accelerated, circulatory drainage is established, and a healthy local action more effectually prbduced than by any known method. We do not get from the faradaic current chemical or endosmotic or exosmotic effects are of principal importance in the study of the nounced character, and as these take place only by virtue of the vitality of the tissues, these physiological effects are of principal importance in the study of the nutritional effects of electricity. It is evident that we get upon the nerve structure itself, together with mechanical effects, influences of an entirely different character. In the use of the galvanic current the advances have been considerable in the past few years, due in great measure to better apparatus and instruments of precision. But so far as the faradaic current is concerned, the great utility of currents of high tension when applied to low resistances, and especially by the bipolar method, cannot be overestimated. As an anægesic in uterine and abdominal pain, when passed through the low resistance of the mucous membrane, these induced currents of tension are of the greatest service, but so far as external applications of the faradaic current are concerned, Rockwell doubts whether we have advanced much either in the methods of application or in the efficiency of the apparatus. The coil of twenty years ago—the so-called continuous coil—is refererd to, with its two thousand feet of wire and its perfect rheotome attachment yielded a current the essential characteristic of which as an aid to nutrition and for general tonic effect has not yet been surpassed. The most important thing in connection with the use of electricity in medicine is its influence over nutrition. It increases the resolution of peri uterine exudates.

The benefit following galvanization of the brain is due to reflex influences, according to Hare, and not to the direct passage of the current through the brain substance. He supports this view by some experimental observations which seem to him to indicate that when a current is passed between the electrodes it does not pass through the brain substance at all, but in the direction of least resistance—namely, the scalp. This, he thinks, was proved experimentally by placing electrodes, one on the occiput and the other on the forehead of a large dog, and arranging a milliampere meter in the circuit. The amount of current indicated in one experiment was 5¾ milliamperes. The same dog was then trephined and a needle connected with one pole of the circuit was plunged into the brain substance, the other terminal being placed as before. It was now observed that the amount of current passing was only 3¾ milliamperes. In other words, the resistance, acording to Hare, is less in the circuit formed by the two wet sponge-coated electrodes and the scalp than in the circuit formed by the needle, brain substance, bones and two layers of scalp with the other sponge-coated electrode.

Deve, on the contrary, reports the following experiments, which seem sufficient to prove that electricity acts perfectly within the central portion of the brain. Upon the head of animals about to be killed two electrodes were placed at the end of the biparietal diameter, and a current of 60 milliamperes passed between them. Two galvano puncture needles, insulated to within 5 millimetres of their points were connected with an astatic galvanometer, thus forming a secondary circuit. This done, these needles, now positive and negative, were plunged into the scalp in the following positions. The primary current was 60 milliamperes:

(1) They were plunged into the bi-polar line 5 centimetres from each electrode, when the metre of the secondary circuit after one minute registered 14 milliamperes. (2) They were separated from each other on this line 4 centimetres, 1 to 11 milliamperes showing. (3) The distance between them was doubled, 1 to 5 milliamperes showing. (4) The positive needle in place, the other was introduced upon the occipit frontal line, 1 to 2 milliamperes. From these and other tests the following conclusions were drawn:—(1) The current passes through the scalp, bone and encephalon. (2) It is stronger in the scalp and grows weaker by diffusion, the more rapidly when electrodes are removed furthest from the biparietal line. (3) It spreads itself evenly through the entire encephalic mass. Nevertheless, assuming that gray matter is a better conductor than white, it is probable that electrical intensity is greatest in the cortical layers. Then, taking for granted the storage of electrical energy, we can schematically represent the head by a sphere, on the surface of which is found the thickest part of a layer of fluid, the thinnest nearest the centre, while the middle layer will correspond to the gray cortical substance. The greatest resistance in the passage of electricity was found in the inner table of the skull.

In the alternating sinusoidal current lately introduced into electrotherapy by D'Arsonval the essential feature is that it has a uniform rise and fall of potential from zero to the maximum, and back to zero again in both directions. For this current it is claimed that it posseses greater penetrating power than the ordinary faradaic current, and that less pain attends the vigorous muscular contractions that it produces. Apostoli's conclusions as to the effects of the alternat-

ing sinusoidal current was as follows: Applied to the intrauterine cavity, it is always well borne and free from danger. Its application is followed by no painful or febrile reaction, and is, on the contrary, generally accompanied by manifest sedative effects. It appears to have no marked action upon hæmorrhage as a symptom, but sometimes has a tendency to prolong this symptom. It exercises a very decided effect upon the symptom pain. This action was noticeable from the very first seance, and most often immediately at the end of the seance. It is a useful remedy in the treatment of leucorrhœa, which under its action often diminishes or disappears. It has no appreciable effect upon hydrorrhœa or fibroma in certain cases. Its influence upon anatomic retrogression in cases of fibroma has not yet been determined, but it increases the resolution of periuterine exudates.

THE LATEST SUGGESTIONS IN THE TREATMENT OF CHILDREN'S DISEASES.

BY WALTER BERGER, M.D.

PART I.

IN the past ten years at the Stockholm Hospital, Heilstrom has seen one hundred and twelve cases of measles complicating diphtheria and one hundred and seventeen cases of diphtheria complicating measles. In the first classification where croup appeared, only 37 recovered and 61 died, while in the 14 cases without croup all the patients recovered but one, forty of these deaths being children under 3. The mortality in the measles croup cases was 62.24 per cent., while it was only 27.3 per cent. in the cases of uncomplicated croup. The mortality in the 117 cases of measles after diphtheria was only 8. About 91 per cent. of the patients in this group were under 6 and 81 per cent. of those in the first group. In 21 of the patients the diphtheria before the onset of the measles had been of the croup variety; the respiratory organs did not seem to be more seriously affected in these cases than in those without preceding diphtheria; only one child had a complicating pleuritis later. Since the introduction of serum treatment the mortality of measles croup has been reduced by nearly 18 per cent., and most of the deaths occurred in cases not seen until almost moribund. When this possibility is remembered constantly and serum treatment is instituted always in time, the outcome will be far better.

It is the modern view to believe that measles and whooping cough are not harmful; Cacerly deprecates the tendency on the part of the profession and of the public to consider these diseases as such, for although the death rate from scarlet fever has been lessened considerably by judicious preventive measures, that from measles and whooping cough remains unchanged; from their fatalities they are as important as scarlet fever or diphtheria. There are peculiar difficulties in their prevention, for the indifference of the public is shared by the profession, and consequently many patients fail to see a physician. Again they are contagious at a time when they cannot be recognized and the variable length of the time that they remain virulent. There is yet not sufficient unanimity among doctors as to the necessity of preventing these diseases, which is difficult due to the fact that their early symptoms are common to these and many other less severe and less contagious diseases, the schools offering the best opportunity for their spread. Consequently in catarrhal diseases of all kinds affecting the upper air tracts, the suffering child should be excluded from the school.

In looking for prodromal rashes of measles, Rolleston found them in 30 cases of measles, or 42 per cent. of the total number of cases he observed. The youngest patient in whom a rash was noticed was one year old, and the oldest nearly 9 years old, proving that the eruption was not a mere roseola infantilas, such as usually attributed to dentition or to the presence of worms. In 22 out of these 30 cases the prodromal rash appeared on the first day of the disease, and in 3 of these the specific eruption followed on the second day; in 4, on the third day; in 9, on the fourth; in 3, on the fifth; in 2, on the sixth; an in one it was delayed until the eighth day. In 7 cases the prodromal rash appeared on the second day; in 3 of these cases it was followed by the specific eruption on the fourth day; in 3 on the third, fifth and sixth days respectively. In 10 cases the prodromal eruption preceded catarrhal symptoms by intervals ranging from one to six days, and in 18 cases the two phenomena appeared on the same day, but in 11 cases the catarrhal symptoms, although present, were ill developed for a period of from one to three days after the first appearance of the prodromal rash. In only 2 cases did the prodromal rash appear subsequently to the catarrhal symptoms, in each case the interval being only one day. In 12 out of 24 cases in which Koplik's spots were noted, the prodromal rashes preceded the buccal exanthem by periods varying from half a day to five days. In the remaining 12 cases the two phenomena appeared on the same day. The isolated macules, 14 cases; blotchy erythema, 10 cases; isolated papules, 9 cases; urticaria, 9 cases; scarlatiniform rash, 9 cases; circinate, erythema, 1 case; the maccules and papules were the first to appear. Urticaria was the latest thing, sometimes co-existent with the specific eruption; the isolated papules were frequently of the size and shape and sometimes of the same distribution as the rose spots of enteric fever. Sometimes they suggested the eruption of rötheln. The frequent appearance of scarlatiniform rashes on the second day of the disease, before the development of catarrhal symptoms, the acompanying injection of the soft palate and fauces and occasional deposit on the tonsils, with submaxillary adenopathy, add to the difficulties of the diagnosis, but the transient nature of the eruption and the association of Koplik's spots, stomatitis and catarrhal symptoms are impotent factors in making a diagnosis of measles. The distribution of the eruption was as follows: On the trunk, 28 cases; behind the ears, 15 cases; limbs, 14 cases; face, 4 cases; neck, 2 cases. The short-lived existence of most of these rashes serves in a degree to account for the scanty attention they have received and associate with their transient existence is the tendency to be localized, not affecting any special situation. Highly characteristic is the simultaneous association of several varieties of eruption, and the fact that these prodromal eruptions are not accompanied by any cutaneus irritation. There is no pain or pruritis,

nor is there any subsequent desquamation, and these initial rashes are not of any prognostic value in treatment.

Now that the early determination of diphtheria is so vital, a new bacteriologic method of arriving at a rapid diagnosis of its presence by means of stained smears made directly from the false membrane present described by Higley is valuable. The smears must be as thin as possible and thoroughly washed and dried between the applications of the stains used; the material for the smears is obtained by means of a strong wire loop needle, the wire being flattened by filling so as to form a sort of curette. The smear is made in a drop of distilled water. Two stains are used. No. 1, 5 drops of Kuehne's carbolic methylene blue in 7 c. c. of water; No. 2, 10 drops of carbol fuschsin in 7 c. c. of water. Fix the smear with the flame in the usual manner. Apply stain No. 1 for five seconds, wash with water and dry with filter paper; apply stain No. 2 for one minute, wash, dry and mount in balsam. These stains must be absolutely fresh. The diphtheria bacilli appear as dark as red or violet rods, irregularly stained, and often containing polar dots. The epithelial cells are stained a bright red. Other micro organisms may appear of the same color as the diphtheria bacilli, but the unevenness of contour of the latter and its mode of division obviates confusion in diagnosis. When properly carried out the diagnosis can be made in fifteen minutes.

In the use of antidiphtheria serum as a prophylaxis of diphtheria Wesener gives his experience with 1,745 cases of diphtheria at Aix. It is his custom to inform the person accompanying the sick child to the hospital of the danger of the spread of the disease, and to propose to give all the children in the family a preventive injection of the serum. Nearly two hundred and fifty of such injections were made in consequence, and only four of the children thus protected contracted the disease, and in 3 it developed within forty-eight hours, proving that they must have been already infected. In the single failure in the series the disease was so mild that it seemed to be merely an ordinary sore throat, but the discovery of diphtheria bacilli caused it to be accepted as genuine diphtheria. The protection conferred by the injections enables the isolation of the patient to be less strict; the period of protection lasts about three or four weeks; this is usually sufficient for the purpose if the premises are also disinfected.

The statistics as to diphtheria antitoxin continue to collect and they are very powerful arguments. The latest is by McCollom, who discusses the treatment with antitoxin in Boston and in several cities in the East. He gives in a chart the percentage of mortality at the Boston City Hospital proper and at the South department from 1888 to 1904, inclusive, with the percentage of mortality of intubations. Previous to 1895 the death rate varied from 46 per cent., in 1888, to 48 per cent. in 1893; in 1890 and in 1894 the death rate was 36 per cent. and 38 per cent. respectively. In 1895, in the latter part of which year the South department was opened and antitoxin was given to every patient ill with diphtheria, the death rate fell at once to 14 per cent.; since that time it has fallen gradually to 9.5 per cent. If the deaths that occurred within twenty-four hours of admission are eliminated, of which there were forty, the actual mortality of diphtheria amenable to treatment during 1904 was 6.95 per cent. The mortality rate of intubation cases previous to the use of antitoxin varied from 78 to 86 per cent., but from 1895 to 1904 the mortality rate of these cases varied from 64 to 26 per cent., and this diminution in the mortality rate is attributed to the use of antitoxin. In Chart B he indicates the ratio of mortality per ten thousand of the population for thirty years, while Chart C shows the percentage of cases of diphtheria sent to the hospital, with the percentage of deaths to the population from 1888 to 1904; Chart D shows a ratio of mortality per ten thousand of the population in Boston, New York, Philadelphia, and Brooklyn for the past twenty years. McCollom comes to the proper conclusion that antitoxin is of tremendous value in the treatment of diphtheria, but to obtain the best results it is important that the serum should be given at the earliest possible moment in the course of the disease, and in severe attacks it must be given in very large doses.

Gonococcus vaginitis is a very frequent disease in institutions for children, as shown by Holt, being very frequent, too, in dispensary and tenement practice and not uncommon even in private practice. While in its milder forms and in sporadic cases it is extremely annoying because so intractable, in its severe form it may be dangerous to life through setting up an acute gonococcus pyemia or infection of the serous membranes, and in its epidemic form it is a veritable scourge. Children suffering from this disease must not remain in the same wards or dormitories with other children, because it is practically impossible to prevent the spread of the disease if infected children remain in the wards with others. If a purulent vaginal discharge is present, a systematic microscopic matter of routine, but in the absence of microscopic examinations, purulent discharge in a young child should be assumed to be due to the gonococcus. One of the greatest difficulties in connection with the gonococcus vaginitis arises from the prolonged quarantine necessary, because these cases are of chronic character and hard to treat. The epidemic of vaginitis reported by Cotton extended from August, 1902, to September, 1903; during this period 319 children were admitted to the hospital, exclusive of the maternity and scarlet fever annexes, the average age being seven years and two months; there were 151 girls and 168 boys. The cases known to be infected numbered 19, only 1 of these being a male. The extremes of ages were six months and 16 years; between these there were 1 of eight months, 2 of two years, 7 of three years, 2 of four years, 3 of six years, 1 of nine and one-half years and 1 of 10 years. The first discharge was from the uretha of a two-year-old boy, under treatment for rectal fistula, 17 days after his first operation, during which interim he had been taken daily to the dressing-room or clinic. Gonococci were next found in the vulvovaginal discharge of a typhoid patient, 2 days after admission and five days after the reported cure of the first case. These two patients appear to have furnished the infection for the entire epidemic; six girls developed vulvovaginitis inside of 21 days; 3 were typhoids, and 3 were surgical cases; all were diapered and all had temperatures taken daily per rectum with the ward thermometers. No new cases

appeared for 54 days, when a vaginal discharge was observed in an eight-months-old surgical case. Most of the patients were infected from the first two cases that occurred. The discharge yielded only to the most heroic forms of treatment, such as douching with strong antiseptic solutions, 10 per cent. pro targol, every four to six hours, preceded by 1 to 2,000 permanganate of potassium solution, and some obstinate cases required additional packing of the vagina with gauze saturated with a 2 per cent. solution of protargol. Of the 18 patients who showed the infection in the hospital, 10 were discharged cured, 2 died of intercurrent disorders and 6 were removed while under treatment. Every hospital for children must be protected against infection from without by "detention wards," in which the newly admitted patient may be subjected to the closest scrutiny to determine his freedom from an acute infection. A complete hospital should also have properly located isolation wards to which patients may be removed on the first appearance of suspicious symptoms of an acute infection. The interne or nurse, while treating a gonorrheal patient should be relieved from other duties in the children's wards; the same care by nurse and physician in sterilization is as necessary as would be observed in going from a child with any acute infection to a non-infected child.

A disposition to convulsions may be either hereditary or acquired, or both factors may be present, as in rachitis, which undoubtedly predisposes to convulsions. The exciting causes may be divided into the following groups (Ashby): (a) Reflex from the intestinal or respiratory tracts, from the internal ear, or from the nose or mouth. (b) Toxic, as in measles or influenza. (c) Central, as in meningitis or syphilis of the brain. (d) Epileptiform, when no cause can be found, and associated with belated intelligence. Convulsions in the newly born are usually reflex and not due to any brain injury, especially in artificially fed children, and the best cure for these is a wet-nurse. A slight hemiplegia may ensue, and disappear after a few days or weeks. Occasionally the convulsions are due to defective brain development, while later dentition undoubtedly plays a part in the production of convulsions, but Ashby dissents from the view that such convulsions may go on to epilepsy and insanity. Convulsive spasm of the glottis is practically always associated with rachitis. Convulsions may be of cerebral origin, and due to meningitis, thrombosis, hemorrhage, tumors, or syphilis. The nature of the fits does not lend much assistance in the diagnosis, although convulsions distinctly of a Jacksonian character are usually due to a syphilitic softening of the cortex of the brain. Slight general convulsions, frequently recurring without apparent cause, and with delayed intelligence, are unfavorable. In the severer forms of convulsions, there is usually high fever, one seizure is followed by another, and deep coma lasting from a day to a week supervenes. Hemiplegia is an important complication; it may be temporary, or persist for life and the limbs become spastic. Blindness may result, but rarely permanent; in other cases the patient may come out of the convulsions deaf or aphasic. As regards treatment, subcutaneous injection of morphine is the most powerful remedy for quickly allaying the irritability of the nerve centers and checking the convulsive movements; a six-months-old infant even may be given a fortieth of a grain on an emergency.

Appendicitis in children is difficult of diagnosis, states J. H. Hess (*Archiv. of Pediat.*), because of the difficulty of examination, due to crying, restlessness and general rigidity and the inability of the very young to relate their symptoms. General or local peritonitis may be the first sign; pain and hyperæsthesia when associated with vomiting and constipation are often symptoms sufficient for diagnosis. There may be "belly-ache" and the curled up lateral decubitus. The pain may be referred to the right testicle or to the region of the bladder; it may at first be localized at McBurney's point, and may soon become diffuse, radiating from the umbilicus to the pelvis. In rare instances perforation may precede pain. Tenderness on pressure is of little value. Rigidity of the right rectus is present early, but is difficult to make out because of the general abdominal rigidity on examination in the very young. Nausea and vomiting soon follow the onset of the pain; chill is rare. The pulse corresponds with the temperature, becoming rapid, weak, soft and irregular with peritonitis. The temperature is not to be relied upon; there may be little fever in very bad cases; there will be a distinct fall after perforation and with the onset of peritonitis. Constipation is the rule; diarrhœa is occasional and indicates a less urgent type. Tympanites develops late. There may be flexion of the thigh and a tendency to put the hand to the region of the appendix. There is frequent micturition. Rectal examination may in older children localize the point of greatest pain; and in later stages abscess. After a few days a lump may be felt in the iliac fossa. The leucocyte count is less valuable than in adults, for in children it may normally reach 20,000 or more. A decided leucopenia is a serious manifestation in the presence of peritoneal infection. In making a diagnosis one must bear in mind colic, indigestion, intersusception, acute intestinal obstruction, Pott's disease, renal or biliary colic, perityphlitic or perinephritic abscess, pneumonia and pleurisy, tuberculous peritonitis, incipient inguinal hernia, typhoid fever and undescended testicle. Cases have been reported at six weeks of age. (If the physician is perplexed and needs a consultant, he had best call in a surgeon, for appendicitis is a surgical disease.)

A new sign of hereditary syphilis is declared by Jukowski to be "a peculiar dryness and mobility of the epidermis. In the newborn presenting slight atrophy this phenomenon is to be found only in certain regions —the chest, the abdomen, the neck, sometimes only the palms and soles. In syphilitic cases, however, the entire epidermis is loose and covers the underlying cutis like a thin shirt. When the child moves this loose epidermis is thrown into folds and presents a curious wavy surface. There is here a very characteristic picture. A few days after birth the skin changes slowly, owing to deep cracks which now come to view and to the accompanying scaling. The fissures go through the entire skin, and the bleeding stripes and spots give the surface a variegated aspect. There is no icterus. In the cases studied by Jukowski no other known symptoms of syphilis were present.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, MAY, 1906

With every influx of light comes new danger. Has he light? he must bear witness of that light.—*Emerson.*

THE PRESENT PROSPECTS OF THE MEDICAL GRADUATE.

IN the first eight years of this century, there will have been graduated from the medical schools of this country about fifty thousand physicians. Despite the fact that the profession is notoriously overcrowded, there has been an increase in the number of matriculates from the year 1882 to 1902 of one hundred per cent. Of course our population is growing steadily year by year, but the increase of physicians is far greater, thus taking the proportion of one physician to six thousand of population, allowing for a natural death rate among physicians, there would be required about three thousand new doctors each year. But in 1902, as an illustration, there were graduated five thousand physicians, considerably more than is required to meet the exigencies of the times. On the other hand, abroad, especially in Germany and France, there is a decided diminution in the number of medical students each year.

On top of this condition of affairs, the council on medical education of the American Medical Association presents a report upon the minimum requirements for admission to medical schools, which, if adopted by state boards, will necessitate of each applicant after January 1st, 1908, that he shall take a five-year medical course. The first year is to be devoted to physics, chemistry and biology, and may be spent in a school of ordinary collegiate attainments. Thus the difficulties are heaped on the unfortunate student of medicine. Each year new branches are added to his work, new data, new theories and new work piled upon him. If a collegiate degree is required in addition, this makes eight or nine years of preparation without hospital work of any sort. Surely no profession in the world requires such preliminary work of its probationers.

Professor Marshall, of the University of Pennsylvania, in his recent report to the Provost, states that "it is only a question of time and that not very far distant when this radical step must be taken, since under present conditions the student's time is so occupied with the regularly scheduled work and exercises that he has scarcely any opportunity to review and digest the facts he has learned or to broaden his mind with collateral reading. When the day's work is done the average student has reached the limit of his capacity for any work which taxes his mental faculties and requires concentration of thought. This must be recognized as an unfortunate state of affairs from which under the present régime there is no escape." Hence Professor Marshall feels that there is a legitimate demand for a five-year curriculum. Dean Marshall's views are of great value, as he is in constant touch with medical student work and sees daily its limitations and trials. Yet it must seem to many minds that a five-year course might well stagger the stoutest heart. It is a question whether the present course could not be utilized in such a way that non-essentials could be placed in the background and the great general outlines of medical practice be covered in four years.

In the average medical school there is not enough cooperation between the various departments. Each pursues its course undisturbed by the work of other chairs and hence one department may absorb all the energies and thoughts of the students for the year, as was the case at the University of Pennsylvania under Professor Marshall's predecessor, the late Professor Wormley. This celebrated chemist made his course so hard and long that the second year of the three-year course then pursued was practically sacrificed to studying chemistry, anatomy, physiology, the practice of medicine and surgery were all forced into the background by the demands of one enthusiastic teacher. Few schools realize this danger or strive to avoid it. Often the amount of work required of students is so far beyond their strength that the professors would be astounded if they knew the truth. All of this may be said to favor a five-year course, but there is in this work much material that could be abridged or generalized. Thus in Professor Wormley's teachings, a large part consisted of teaching obsolete facts and methods which were not recommended or advised, yet the student was required to learn them thoroughly. All such work should be cut out; each professor should know what his colleagues are doing and economy of time and energy would work wonders. If a fifth year was added, each professor would add to his curriculum and probably the five years would be as crowded as the four are now, as the three and two were years ago.

PHYSICAL EDUCATION AS AN INTEGRAL PART OF A COLLEGIATE CURRICULUM.

IN the spring of 1904 the Board of Trustees of the University of Pennsylvania made a course in physical education a part of the university cirriculum, for sutdents under twenty-one years of age, and upon all over that age for whom the Director may consider it advisable.

A broad distinction must be made between athletics and physical education. In most athletic games the education of the body is a mere incident and not at all of an educational nature.

Professor McKenzie adopted a scheme of physical education of which the main requirements are;

(1) Increased respiratory; (2) developments of the neglected muscle groups of the arms, chest and abdomen, and (3) the training of neuro muscular control which is lamentably lacking in so many cases that present themselves for examination. The great mass of men must begin with the simplest movements and exercises, going to more complicated work as progress points out to be necessary. In this way the student receives a complete education of his strength, speed, agility and endurance besides an acquaintance with the elementary movements of games and sports.

In an analysis of the first one thousand men examined, Dr. McKenzie found that five hundred and ninety-four showed marked defects of some sort, one hundred and sixty have uneven shoulders, the right being lower in all than twenty cases. Eighty-four showed well advanced lateral curvature of the spine. In two hundred and nine cases the chest was flattened and the shoulders round to the extent of interfering with respiratory movements. All these cases were capable of being straightened and developed by proper exercises. Two hundred and seventeen men showed a breaking down of the arches of the foot. Hernia, unprotected, was found in twelve cases and gastro-intestinal trouble in two hundred more.

Dr. McKenzie began with six hundred men on his class list; one hundred and eighty-four were excused as being on teams, and seventy-seven were physically disabled, making a total of eight hundred and sixty-one men. The work was popular from the start, and when weather permitted was conducted in the open air.

In the matter of eyes a careful examination was held which revealed many unexpected conditions. As a result of this work it has been shown that there was a crying need for this systematic inspection and work, as vital and pressing as any developments along intellectual lines, for a sound body is essential to a sound mind, and this work and report of Dr. McKenzie shows how much has been neglected in college circles. Ordinarily the men who use a gymnasium voluntarily, are men who do not especially need it. The average college student must be forced into it as a part of his curriculum.

A NATIONAL QUARANTINE.

A BILL for a national quarantine is making its way through Congress. It has passed the House by a vote of 202 to 26. Its passage is imperative, as every humane person must agree who recalls the dreadful lack of adequate and concerted quarantine measures which obtained last summer in Louisiana and the adjacent states. It were well to consider for a moment such steps as have been taken in the past to this end.

It has for many years been obvious to sensible Southerners, no matter how strongly they may have felt concerning "states rights," that in such matters as the prevention of contagions Federal laws generally get themselves enforced, while state and local regulations are quite as generally unequal to the emergency. James W. Garner has in the *Yale Review* summarized Federal legislation relating to public health since the time of Washington. We shall here review only the period dating from the creation of the National Board of Health in 1879. By its power of offering pecuniary aid to state boards, it induced general compliance with its recommendations and "an approximate degree of uniformity and efficiency" was thus secured. The Secretary of the Treasury was, in 1890, for the first time authorized to formulate rules and regulations to prevent the spread of plague without regard to the local provisions; but this applied only to interstate quarantine. In 1893 it was enacted that the Federal authorities, if they find local regulations inadequate, may make additional ones and, if the local officers refuse or neglect to enforce them, the President can do so. This plan, however, quite lacks the rapidity of action absolutely necessary to avert great danger. In the first year of this new law a cholera ship actually landed at an American port before its clumsy machinery could be brought into action. We have also seen two sets of quarantine officials at one port, putting every arriving vessel to double expense and delay through the farce of reinspection.

The present system, which was found to be so impotent in and about New Orleans last summer, is virtually one of local quarantines, some stations being obtained by national, some by state, and some by municipal authorities. By means of an annual conference of quarantine officials most of the stations have gradually been taken over by the national government, even without new legislation. There now remains indeed but eight disinfection and twelve inspection stations

maintained by states and cities. To say that some of these must be more efficient than others is only to say what is true of every other group of human institutions under independent management, especially if it be of a semi-political sort. "But there are not many human institutions in which even temporary laxity is likely to be followed by such dire consequences. Against the attacks of disease our coast line is no stronger than its weakest point."

The present bill, as it stands at this writing, has one rather unfortunate feature. It is intended to restrict only against yellow fever. The national quarantine should be of a general sort, directed against all infections and epidemics which may attack any one or all sections of the country. No doubt this feature will receive due consideration by the Senate, and may be remedied by that body. The control of all quarantine stations, grounds and anchorages is to be placed by this measure under the Secretary of the Treasury, and directs that as soon as practicable after the passage of the act he shall select and designate such suitable plans for them and establish the same at such points on or near the seacoast of the United States, or on the Mexican border, as in his judgment are best suited for the same, in order to prevent the introduction of yellow fever into the United States. A quarantine station is to be established at the Dry Tortugas Island and at three other points at or near the seacoast. It is also provided that every common carrier engaged in the interstate commerce shall receive and carry through any state or territory passengers, freight and baggage which may have been discharged and properly certified in accordance with the regulations of the Public Health and Marine Hospital service.

ASEPTIC MONEY.

WE note that a bill has been introduced into Congress providing for the franking of dirty or mutilated bills to the United States Treasurer, by any individual or corporation, and the redemption of the same in new bills, without any charge for postage or exchange.

Washington residents detect visitors by their possession of dirty bills, and we understand that local conditions for the redemption of old bills are more favorable than in other parts of the country. Various bacteriologic tests have shown that all metals are unfavorable lodging places for germs, and that many, including those used for coins, have a positive, though not great, antiseptic action. Paper is, however, a fairly good medium for collecting germs, and undoubtedly acts as a medium for the conveyance of infection, although cases in which this can be positively demonstrated are obviously rare. However, various pathogenic organisms, including tubercle and diphtheria bacilli, have been isolated. The New York Board of Health found that moderately clean bills from a grocery yielded an average of 2,250 bacteria; dirty bills, 73,000; cents, 26; dimes, 40. Coins held in the mouth by diphtheritic children yielded no bacilli after forty-eight hours. Bills infected with diphtheria bacilli yielded cultures for a month.

The visitor to most European countries is surprised at the relative amount of coin in circulation and the corresponding scarcity of bills. Even the pocketbooks are differently made, on this account. The Bank of England never reissues a note that has been returned.

While welcoming any legislation tending to improve the disgraceful condition of our paper currency, it occurs to us that there may be some objection to the method proposed. A more practical scheme would be to provide for the redemption of dirty and mutilated currency at various banking centers throughout the country, say in 100 of the largest cities.

Dr. A. L. Benedict, of Buffalo, has proposed the use of aluminum cards of a size corresponding to the bill as ordinarily folded. Such currency would be fairly aseptic, light, no more bulky than bills, and both printing and impression or actual perforation could be employed to prevent raising of denomination and counterfeiting.

AS TO VACATIONS.

PATIENTS become oftentimes so "run down" that tonics, diet and like measures are no longer effective, and the only prescription available is to take the sufferer away from his work and to pack him off somewhere for a vacation. It is in the form of this final prescription, this last recourse, that physicians sometimes make mistakes. For instance, not so very long ago a "magnate" on the verge of collapse, whose mental and bodily habit had been of an extremely active sort, was counselled to go to Europe and rest. He was to do absolutely nothing but eat, sleep and sit on a hotel porch, where the most vigorous exercise he might indulge in was to twiddle his thumbs for many hours at a stretch. He started in to obey these directions; but such was his temperament that he was no more able to continue in this course than he could reach Mars by means of a dirigible balloon. The result was that, craving such excitement as had always been meat and drink to him, he kicked over the traces and provided a mild scandal by turning to gambling, a sport to which, it seems, he had not theretofore been addicted.

The point here is that in counselling recreation for a man whose mind and body are naturally active, one will harm rather than benefit by prescribing a course of inocuous desuetude; for the activities over which the patient has become wearied other and diverse ones must be substituted. The patient just instanced would no

doubt have done very well and would have become thoroughly rested and refreshed if an inspiriting tally-ho through the beautiful and ever-varying scenery of England and Scotland had been prescribed; or a yachting cruise (not on a steam yacht) with the patient himself taking hold of a rope now and then.

Another mistake, and a graver one, we think, is to prescribe active exercise for a patient past middle life, whose habits through many years have been sedentary. Such a course has not infrequently proved fatal or has, at any rate, hastened a fatal issue. Such a patient would probably do best on a grassy bank by a pretty stream with an interesting book to raise his eyes from now and then. If such a patient is to take exercise at all, it must be carefully graded. The man advised to play golf, who has never played the game before, must be restrained from making eighteen holes the first day; a few holes must suffice to begin with, with much resting between drives. Among the best of exercises is walking, we think, which must also be graded. On a walking trip no more than five miles should be undertaken the first day, ten the next; at the end of a week one may then walk from sunrise to twilight without fatigue and with enormous appetite.

Of course there should be change, as pointed out in a recent discussion before the American Academy of Medicine; but the change should not be so revolutionary as to be a shock to the system. The clerk should exercise his muscles and get into the open air at the end of his day's work. In New York City there is a wholesome fashion among lawyers and "Wall Street men" by which this matter of exercise is well adjusted. Many of these men walk down to business, and return in the afternoon by the same means of locomotion. It is rumored, we know not with how much truth, that occasionally this excellent habit of walking to and from business is to some degree nullified by imbibations not at all of a salutary nature. And in exercising the body the mind should also enjoy a wholesome stimulus; this is supplied in such competitive games as tennis and golf. The *Journal of the American Medical Association* points out very well that in considering the effect of exercise on the nervous system (which is the source of all energy) we should recall that different occupations make a call on the energy of different areas in the brain. "In exercise we must attempt to rest the areas used in the daily routine and to bring into play different areas. Naturally muscle workers do not require the same sort of recreation as brain workers. In fact, the two classes need forms of recreation almost diametrically opposed." These observations, we think, are in conformity with those to which we have ourselves given expression.

Three Thousand and Seventy-five Americans took the cure at Carlsbad last year. How our German colleagues must love "the dear—and easy—Americans."

DRUGGISTS AND SUBSTITUTION.

WHENEVER we hear people talk about druggists and substitution, we like to recall a man by the name of Diekman—George C. Diekman, M.D., Ph.G., Professor of Dispensing Pharmacy in the Columbia University and Member of the New York State Board of Pharmacy. We once heard some observations which this gentleman made in a public meeting; and we reached the conclusion that he is the kind of man who, whenever he says a thing, there is no need for him to add to his statements an affidavit signed and sworn to.

Dr. Diekman has been in a position to collect data, which he presented in the *Medical News*, June 17, 1905; these data demonstrate that statements accusing druggists of fraudulent and sordid substiutution and adulteration are absolutely false concerning at least ninety per cent. of these professional men. What other calling could make a better showing than this? In his official relations with the State Board of Pharmacy he has had collected during the year 1904 more than two thousand samples from pharmacists carrying on business in and about New York City. Analyses of these samples showed that 87.37 per cent. were standard or nearly so. 117 samples, representing 5.51 per cent. of the total number collected, were found to contain methyl alcohol; most of such preparations were intended for external use. Besides, these samples were not taken from 117 different sources; three, and sometimes four of them were in many instances taken from the same store. 151 samples, representing 7.12 per cent. of the total number collected, were found to be deficient in strength, but containing no ingredients except such as constitute the pharmacopœial formula. Such violations are usually the result of a careless supervision during the process of manufacture of such preparations; they may well be classed as errors of omission rather than of commission. In some instances it was found that the pharmacist sold to the public preparations deficient in strength, while, if a physician's prescription were presented for the same preparations, they were dispensed of a quality strictly in accord with the official standard.

Some of the samples were collected from stores not classified as pharmacies, which are, nevertheless, under the Pharmacy Act, permitted to sell such "household remedies" as cream of tartar, borax and the like. Every adulterated sample of cream of tartar was purchased from a grocer, whilst every sample of drug store origin was found to be pure.

We pass from much other equally convincing statistical matter, to the observation that the druggists have had enacted a law which requires that an apprentice possess a much higher degree of education than heretofore; the course which he must now pursue if he would

practice pharmacy in New York State is certainly a difficult and arduous one. It is thus evident that pharmacists are endeavoring to develop the professional side of their business rather at the expense of the commercial side; as one result a greater outlay for hire of assistants is necessitated. The ultimate object is to elevate the profession of pharmacy to the same level with our own, so far as educational requirements are concerned.

What we want to emphasize, however, is that he who makes sweeping assertions of dishonesty concerning any calling, is utterly ignorant or oblivious of human conditions. Human nature is to the good; more than fifty per cent. to the good. If one reflects for a moment he must conclude that civilization were impossible on any other basis. Most men are honest; if they were not, the world's business could not be done. We recall a conversation between a physician and a druggist in which the advantage, so far as good temper is concerned, was certainly with the latter. The physician declared: "Oh, well; all you druggists are substitutors." "Yes, and all you doctors are ab—" (we don't like to print the word). "But you know very well," continued the druggist, smiling genially, "that neither statement is true." And this the physician had the grace to admit. There are exceptions, of course; but, as a rule, the druggists make up our prescription prescriptions faithfully and accurately.

THE SMOKE NUISANCE.

There are some people doing business in the metropolis who feel that the palladium of our liberties is being destroyed, that the blood which our forefathers shed has been shed in vain. At least they say things to this effect—or their lawyers do for them—in loud and blatant language. The Health Department has been prosecuting them for violating the law, in that they have been burning soft coal in a manner to produce an unhealthful amount of smoke and soot; and some very effective evidence has been produced in the shape of photographs of volumes of heavy smoke pouring from factory chimneys. We ask the reader to note our phraseology. It is not against the law to burn soft coal; but it is so to produce by this means black smoke and soot such as is a nuisance and a menace to the communal health.

Bituminous coal can be burned in such a way that chimneys under which it is used will not belch forth hideous and noxious vapors. Prof. W. Jones, who is engaged by the Metropolitan Railroad, states in a letter addressed to our esteemed lay namesake, that in the power plant of this company there is little or no smoke produced. This result depends in no way upon any special apparatus termed a "smoke consumer;" indeed, Prof. Jones knows of no such apparatus. "The whole trick in burning soft coal and producing no smoke is to feed the coal gradually to the furnaces, and in such a way that the smoke produced is produced only in the front part of the furnace and is consumed in passing over the back part of the fire, which is a bed of incandescent coke, the whole fire being gradually moved from the front to the back of the furnace. This feeding is, of course, done in all large plants by machinery, both for soft and hard coal." In small furnaces, an intelligent fireman—none other should be employed—can get the same results, no matter what coal is used.

The city of Cleveland furnishes a demonstration of a smokeless city in the factories of which soft coal is almost exclusively used; and this result is brought about in a community of nearly half a million by a staff composed of a special engineer and three inspectors—backed up by a wholesome public sentiment. The public sentiment is, after all, the thing that does the work; the officials are but its instruments. They have in that city a law, rigidly enforced, to arrest, not only the fireman, but "the owner, agent, tenant, occupant, or any other person in charge or control of" any structure other than a private house.

The chief complaint of those prosecuted for these nuisances is that hard coal is so difficult to get—it is so expensive. We confess there is something in this. Hard coal is very expensive—why, is not easy of explanation. Mr. Baer and his confreres might enlighten us; but they would probably consider impolitic a frank statement in this regard. What the humble citizen can reason out, however, is that a year ago the Pennsylvanian miner got seventy cents a ton for his diggings (we have not seen what the poor devil gets to-day) whilst the consumer must pay nearly ten times as much for this same amount of coal. Evidently there are somewhere in this business those who are extortionate. Here, we think, is a situation in which we might well pray for at least a brief presence among us of a benevolent despot with full power of life and death. Yes, anthracite comes high; but, as we have pointed out, it does not have to be used. It is complained that if soft coal cannot be burned, practically all factories will have to be closed down. But the contrary obtains in Cleveland, where, during the past four years, the number of manufactories has doubled.

NITROGENOUS FERTILIZERS.

Certain disquieting rumors have recently found place in the lay press; we must now begin to expect this sort of thing in the lay press, for spring is upon us and summer will soon follow, when the silly season in journalism is at its height. Some one who combines a genius for pessimism with an inordinately acute faculty of calculation has prophesied that the world's wheat supply would, within a certain fixed number of centuries (we don't recall the exact number of them), be insufficient for its rapidly increasing population because of a prospective insufficiency of nitrogenous fertilizers. We don't, for our part, like people who make calculations tending to enhance the fears of humanity or its perplexities. Humanity suffers enough from this sort of thing as it is. We would, if we could, add such morbid calculators to the Gilbertian list of "people who might just as well be under ground, and who'd none of them be missed." Now, however, comes a satisfying man and a true benefactor—Sir William Ramsey—who points out that the air over each square mile of the earth's surface contains enough free nitrogen to afford sufficient plant food for the whole world's needs. And we quite agree with an exchange which ventures the opinion that we "could probably spare a square mile of atmospheric nitrogen once or

twice in a century without seriously affecting the general average." And close upon the statement of this reassuring knight comes the announcement that Birkeland and Eyde, of Christiana, have perfected a process for the fixation of atmospheric nitrogen and the synthetic production of nitrites by the use of a special electric furnace, in which an alternating electric arc was produced at between 3,000 and 4,000 volts, but under special conditions, the arc being formed between the poles of a large electro-magnet, which forced it to take the form of a roaring disc of flame. In these furnaces such a disc of flame was four or five feet in diameter, and was enclosed in a metal envelope lined with fire brick, through which air, being blown, emerged charged with nitric oxide fumes. These fumes were collected, allowed time further to oxidize, then absorbed in water-towers or in quicklime, nitric acid and nitrate of lime being the result. The latter, in several forms, including a basic nitrate, is known as Norwegian saltpetre. It is as good as Chili saltpetre as a fertilizer; the lime in it being of especial advantage for certain soils. We should note that the chief fertilizer now in use is the nitrate of soda exported from the nitrate beds in Chili; and it is estimated that these Chilian beds will be exhausted in fifty years. Before their discovery the Peruvian guano deposits were used; these are, however, now exhausted to-day.

These fertilizers are now extracted from the atmosphere in other places. There is a station at Arendal in the Hitterdal, at Niagara Falls, where the electric conversion of water power is cheap; and at Charlottenberg, in Germany, where the product is called kalkstickstoff.

CLAUSTROPHOBIA.

A number of peculiar psychic states, in which the emotion of fear is predominant, have of late years reached the dignity of scientific discussion. But recently Dr. Weir Mitchell contributed a valuable paper on "The Fear of Cats." Ergophobia—the fear of work—has received consideration, some of which has been rather diverting and not altogether scientific, with relation to this affliction as it seizes upon the American genus "tramp" and his English congener, who when asked his occupation answered that he did not work—he was a gentleman. Agoraphobia—the fear of open spaces—is, however, a distinct medical entity requiring serious consideration; and equally so is its opposite claustrophobia, the fear of confinement. The author, Philip Gilbert Hamerton, furnishes a case history of this malady, and an excellent one, for the reason that this patient was in all other respects quite sane and normal. Hamerton was the author of the admirable book, "The Intellectual Life," which is much too little read, and was also a biographer, novelist, painter, etcher, essayist, poet, critic and a "Saturday Reviewer."

One might here dismiss the claustrophobia of Hamerton on the assumption that he was a genius; however, this many-sided man was not so in the sense that "genius is allied to madness;" he was not one of those of whom crankiness and foolish notions are to be expected as a matter of course. He was a son of a hard-headed, sensible parents; and was himself a herd rider, a carpenter, an oarsman, a swimmer who could smoke a pipe in the water, and a designer and builder of all kinds of lake and river craft; and his literary and artistic successes were due to "leaden hours of plodding rather than to golden moments of inspiration." The memoir written by his devoted wife is filled with allusions to this melancholy infirmity. For instance, there is this record of an attack immediately after crossing the English Channel (he was neither seasick nor nervous on the water): Immediately on leaving Dover for London his wife perceived signs of uneasiness in his behavior. He closed his eyes so as not to see moving objects; he uncovered his head, which seemed by the flushed face to be burning; he chafed his cold, bloodless hands and shuffled his feet to bring back circulation; his eyes had a far-reaching look and unusual steely brilliancy; his expression was hard-set, rigid, almost defiant, "as if ready to overthrow any obstacle in his way; and, indeed, it was the case, for, unable to control himself any longer, he got up and told me hoarsely that he was going to jump out of the train. I took hold of his hands, and said I would follow; only I entreated him to wait a short time, as we were so near the station. I placed myself quite close to the door of the railway carriage, and stood between it and him." Happily, a railway station was soon reached; when he rushed from the train and into the fields. His wife followed him "like one dazed and almost heart-broken." After half an hour he lessened his pace and turned to her and said, "I think it is going." For two hours they continued to walk, at the end of which Gilbert said tenderly, in his usual voice, "You must be terribly tired, poor darling. I think I could bear to rest now. We may try to sit down."

Now comes an exhibition of brutality on the part of those who "did not understand." This unhappy incident occurred near Adisham on a Sunday and during church time. Hamerton's noble wife, a Parisian lady, imperfectly acquainted with English speech and customs, found an inn. The sudden descent of a French woman without luggage and a distraught Englishman seemed obviously an outrageous and a scandalous occurrence; and it was only after prolonged argument and a show of passports that the slightest refection was set forth. The end of the affair was a merciful convalescence, dragged out without even a bedstead; for the mattresses were spread on the inn floor.

The prayer of the Medicine Man to nature in behalf of a little child is described in *The Journal of American Folk Lore.* The life of the infant is pictured as about to travel a rough road, stretching over four hills, marking the stages of infancy, youth, manhood, and old age. Eight days after a birth the Medicine Man is sent for, who comes, clad in his priestly robes, and stands at the door of the tent in which the child lies. Raising his right hand to the sky, he calls: "Ye Sun, Moon, Stars, all ye that move in the heavens, I bid ye hear me! Into your midst has come a new life. Consent ye, I implore! Make its path smooth, that it may reach the brow of the first hill!" And so, in poetic language, does he ask for help of the elements and of all forces in nature with regard to the second, third and fourth hills. And finally he prays that having reached thus far, its path may be made smooth, so that it may travel thence beyond the four hills.

BIBLIOGRAPHICAL

Chemistry of the Proteids.—By Gustav Mann, M.D. (Edin.), B.S., (Oxon.), University Demonstrator of Physiology, Oxford. Based on Professor Otto Cohnheim's "Chemic Der Eiweisskörper." London and New York: The Macmillan Company, 1906. 606 pages. Octavo, $3.25.

This volume while based upon Professor Cohnheim's classical work, has not only been extended and brought up to date, but many questions are discussed and opinions expressed, which are at variance with the views held by this distinguished author. The work may, therefore, be considered a new one. The author says that so-called neutral salts are as a matter of fact not neutral, for it is their very want of neutrality which allows them to dissolve in water, and which also enables them to dissolve globulines or to keep these compounds in solution.

The author has attempted to bridge over the gulf existing between the biologists and the physio-chemical school, a most important matter. The student of chemistry should have this book.

On Professional Education with Special Reference to Medicine.—An address delivered at King's College, London, Oct. 3, 1905, by T. Clifford Allbutt, M.A., M.D., F.R.S., Hon. D.Sc., Oxon., etc., Regius Professor of Physic in the University of Cambridge. London and New York: The Macmillan Company, 1906. Price, 75 cents; 80 pages, 12mo. This classical production is worthy the attention of those who are interested in its subject.

A Treatise on Surgery.—In two volumes. By George R. Fowler, M.D., Examiner in Surgery, Board of Medical Examiners of the Regents of the University of the State of New York; Emeritus Professor of Surgery in the New York Polyclinic, etc. Two imperial octavos of 725 pages each, with 888 text illustrations and 4 colored plates, all original. Philadelphia and London: W. B. Saunders Company, 1906. Per set: Cloth, $15.00 net; half morrocco, $17.00 net.

The appearance of this work has been looked forward to with great anticipations by the profession, the late lamented author's standing in the field of practical surgery being of the highest order, and our expectations should be fully satisfied by his masterpiece. He has given us an accurate, up-to-date treatise on surgery, skilfully presented. It is an entirely new work and presents the science and art of surgery as it is practised to-day. The first part deals with general surgery, and embraces what is usually included under the head of principles of surgery. Special attention is given to the subject of inflammation from the surgeon's point of view, due consideration being accorded the influences of traumatism and bacterial infection as the predisposing and exciting causes of this condition. Then follow sections on the injuries and diseases of separate tissues, gunshot injuries, acute wound diseases, chronic surgical infections (including syphilis), tumors, surgical operations in general, foreign bodies, and bandaging. The second part of the work is really the clinical portion, devoted to regional surgery. Herein the author especially endeavors to emphasize those injuries and surgical diseases that are of the greatest importance, not only because of their frequency, but also because of the difficulty of diagnosis and the special care demanded in their treatment. Throughout, special attention has been given to diagnosis, the section on laboratory aids being unusually excellent. The text is elaborately illustrated with entirely new and original plates and cuts, and evidently neither labor nor expense has been spared to bring this feature of the work up to the high standard of artistic and practical excellence. In the language of the author, "the work represents the highest ideal of the bookmaker's art." The work will stand as the greatest monument that can be reared to the author's memory.

A Hand-Book of Climatic Treatment, Including Balneology.—By William R. Haggard, M.A., M.D., F.R.C.P., London; H. B. M. Consul at Davos, Switzerland. London and New York: The Macmillan Company, 1906. 536 pages. Octavo, $4.

The chief aim of this volume is to place the therapeutics of climate upon a solid foundation, by means of physiology and classification, and especially fitted for the needs of the profession. A concise account of meteorology, or the factors of climate, from a medical standpoint, precedes the physiological discussion. Another point which should be emphasized is the therapeutic classification of baths and mineral waters, a practical and useful undertaking. The book will be found invaluable for ready reference.

The Crux of Pastoral Medicine.—The Perils of Embryonic Man: Abortion, Craniotomy and the Cesarean Section; Myoma, and the Porro Section. By Rev. Andrew Klarmann, A.M. Second, revised and enlarged edition. Price net postpaid, $1.35. New York: Fr. Pustet & Co.

This little book seems to have satisfied a want in the theological world on important questions, so that a second edition has been called for. It voices the teachings of the Roman Church, and its followers will certainly be interested in the perusal of this volume.

Nursing in the Acute Infectious Fevers.—By George P. Paul, M.D., Assisting Visiting Physician and Adjunct Radiographer to the Samaritan Hospital, Troy, New York. 12mo. of 200 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $1.00 net.

This book has been written especially for the nurse and with a knowledge of the subject that can have been gained only by intimate association with routine hospital work. The care and management of each fever has been accorded special attention, as these subjects are of particular interest to the nurse. The author has divided his work into three parts: The first treats of fevers in general; the second of each fever individually; the third deals with practical procedures and information necessary to the proper management of the various diseases discussed, such as antitoxins, bacteria, urine examination, poisons and their antidote, enemata, topical applications, antiseptics, weights and measures, etc. The author has rendered a valuable service, not only to the nursing but also to the medical profession, as much of the information given will be found of service to the general practitioner.

Saunders' Question Compends.—Essentials of Genito-Urinary and Venereal Diseases. By Starling S. Wilcox, M.D., Professor of Genito-Urinary Diseases and Syphilology, Starling Medical College, Columbus, Ohio. 12mo of 313 pages, illustrated. Philadelphia and London: W. B. Saunders Com-

pany, 1906. Cloth, $1.00 net.

This little work is a worthy addition to Saunders' Question-Compend Series, a series that has reached a sale of over 265,000 copies. In this present work by Dr. Wilcox all genito-urinary and venereal diseases are fully detailed in the terse, direct language of question and answer, so that the student grasps immediately the point in question. Illustrations are freely used, adding much to the value of the book; and the large clinical experience of the author stamps it at once with accuracy and thoroughness. For the student there is none better; and the practitioner will find in it much that he is called upon every day to put into practice.

The Operating Room and the Patient.—By Russell S. Fowler, M.D., Surgeon to the German Hospital, Brooklyn, N. Y. Octavo of 172 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $2.00 net.

In this admirable work we have a book that has long been needed, one that is unique in that it is the only work on the market devoted entirely to operative technique, with the preoperative procedures of sterilization and preparation. Written by a surgeon of rich clinical experience for the use of surgeons, nurses assisting at an operation, and hospital internes, it clearly describes the preparation of material of all kinds, indicates the instruments required for the various operations, details the preparation and care of the patient before and after operation, and the methods of anesthetization, describes and illustrates the position of the patient for difficult operations, and contains all other information a knowledge of which is necessary to produce the highest efficiency. Indeed, it is a most excellent and most valuable work for practical use, and the operating surgeon will find it of additional value as it furnishes him a guide to which he may readily add his own variations of technic. The publisher is to be congratulated upon his part, which is in the highest art of book-making.

A Reference Handbook of the Diseases of Children.—For Students and Practitioners. By Prof. Ferdinand Fruhwald, of Vienna. Edited, with additions, by Thompson S. Westcott, M.D., Associate Professor of Diseases of Children in the University of Pennsylvania. Octavo volume of 553 pages, with 176 illustrations. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $4.50 net; half morocco, $5.50 net.

To those of the profession who are acquainted with Professor Fruhwald's work in the original German, it is hardly necessary to speak of the extremely valuable service the W. B. Saunders Company has performed in presenting this English translation. It must be said, however, that the translation possesses an advantage over the original—though it be the work of a leader amongst leaders in pediatric knowledge—in that the editor, Dr. Westcott, has incorporated much valuable matter, the results of his own valuable experience. With a view to making it of special service as a practical reference book, the individual diseases have been arranged alphabetically, with numerous cross-references. This is a novel feature of untold value to the busy practitioner who wishes information quickly. Special consideration has been given to symptomatology, and the prophylactic, therapeutic, and dietetic treatments have been elaborately discussed; especially is therapy treated according to the latest discoveries. The illustrations are practical and excellent, nearly all being reproductions of original photographs and drawings representing cases from Prof. Fruhwald's own clinic. We can foresee for this work the same great success in this country that it has achieved in Germany.

A Text-Book of Materia Medica, Therapeutics, and Pharmacology.—By George F. Butler, Ph.G., M.D., Associate Professor of Therapeutics in the College of Physicians and Surgeons, Chicago. Fifth edition, thoroughly revised by Smith Ely Jeliffe, M.D., Ph.D., Professor of Pharmacognosy and Instructor in Materia Medica and Therapeutics in Columbia University (College of Physicians and Surgeons), New York. Octavo of 694 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $4.00 net; half morrocco, $5.00 net.

The fifth edition of this text-book has been entirely remodeled, rewritten and reset, bringing it in accord with the new (1905) Pharmacopeia. All obsolete matter has been eliminated, and special attention has been given to the toxicologic and therapeutic effects of the newer compounds. The general arrangement of the book has been so changed that those drugs the predominant action of which is on one system of organs of the body are grouped together, thus suggesting their therapeutic, as well as their pharmacologic, alliances. This classification is more thoroughly practical and useful than any other. By use of a more compact type the work has been reduced in size. The book can be recommended as one of the best of its class.

Diseases of the Eye.—A Handbook of Ophthalmic Practice. By G. E. deSchweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. Fifth edition, revised and enlarged. Octavo of 894 pages, 313 text-cuts and 6 chromo-lithographic plates. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $5.00 net; half morocco, $6.00 net.

This is so well known that anything but a mere mention of the new edition seems superfluous. The success it has achieved is readily accounted for if one but glance through its contents. In this edition, enlarged by the addition of new matter to the extent of some one hundred pages, there have been added, amongst other subjects, chapters on the following: X-Ray Treatment of Epithelioma, Xeroderma Pigmentosum; Purulent Conjunctivitis of Young Girls; Jequiritol and Jequiritol Serum; X-Ray Treatment of Trachoma; Infected Marginal Ulcer; Keratitis Punctata Syphilitica; Uveitis and Its Varieties; Eye-ground Lesions of Hereditary Syphilis; Macular Atrophy of the Retina; Worth's Amblyoscope; Stovain, Alypin; Motais' Operation for Ptosis; Kuhnt-Muller's Operation for Ectropion; Haab's Method for Foreign Bodies; and Sweet's X-Ray Method of Localizing Foreign Bodies. Other chapters have been rewritten. The excellence of the illustrative feature has been maintained and thirty-three additional text-cuts have been added. Dr. de Schweinitz's work was long ago recognized as an authority and this new edition will continue to hold it there.

A Text-Book on the Practice of Gynecology.—For Practitioners and Students. By W. Easterly Ashton, M.D., LL.D., Fellow of the American Gynecologic Society; Professor of Gynecology in the Med-

ico-Chirurgical College of Philadelphia. Second edition, revised. Octavo of 1079 pages, with 1046 original line drawings. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $6.50 net; half morocco, $7.50 net.

The fact that two editions of Dr. Ashton's new work have been required in the short period of six months indicates beyond a doubt that the professor was quick to appreciate the practical merits of the book; indicates that the general practitioner wants a treatise on gynecology that does not assume him to be an expert gynecologist, but rather describes in detail, not only what should be done in every case and emergency, but also precisely how to do it. Owing to the short time that has elapsed since the appearance of the first edition, and also from the thorough manner in which Dr. Ashton handled his subject originally, the changes in this edition are necessarily few in number and limited chiefly to the correction of a few typographical errors and the alteration of several of the illustrations. In reviewing this new edition we cannot refrain from again speaking of the very practical illustrations. There are 1046 of them, all original line drawings made especially under Dr. Ashton's personal supervision, from actual apparatus, living models, dissections on the cadaver, and from the operative technics of other authors. All superfluous anatomic surroundings are eliminated and the operations and procedures are detailed step by step with clearness and accuracy. Certainly, the success the work has won is well deserved and fully to have been expected.

Progressive Medicine, Vol. I, March, 1906.—A quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medicia in the Jefferson Medical College of Philadelphia. Octavo, 304 pages, with 7 engravings. Per annum in four cloth-bound volumes, $9.00; in paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., publishers, Philadelphia and New York.

The subject considered in this volume are: (1) The Surgery of the Head, Neck and Thorax, by Charles H. Frazier, M.D. (2) Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza, by Robert B. Preble, M.D. (3) The Diseases of Children, by Floyd M. Crandall, M.D. (4) Rhinology and Laryngology, by D. Braden Kyle, M.D., and (5) Otology, by B. Alexander Randall, M.D.

Practice makes perfect in the art of assimilating only the very best from a vast amount of material. It follows, therefore, that as all the contributors to Progressive Medicine have profited by their experience in the past, their readers are enabled to learn in an hour what it has taken them months to acquire.

The general get-up of the book, the paper, print and indexing, are of a solid and enduring quality, and make its use not only profitable but pleasurable.

The Examination of the Function of the Intestines by Means of the Test-Diet.—Its Application in Medical Practice and its Diagnostic and Therapeutic Value. By Prof. Dr. Adolf Schmidt, Physician-in-Chief of the City Hospital Friedrichstadt in Dresden. Authorized translation from the latest German edition, by Charles A. Aaron, M.D., Professor of Diseases of the Stomach and Intestines in the Detroit Post-Graduate School of Medicine; Clinical Profesor of Gastro-enterology in the Detroit College of Medicine; Consulting Gastro-enterologist to Harper Hospital, etc. With a frontispiece plate in colors. Crown octavo, 91 pages, extra cloth. Price, $1.00, net. F. A. Davis Company, Philadelphia.

This little volume sums up for practical purposes the investigations and observations of the distinguished author for about eight years. It has been the desire to obtain an examination for the function of the intestines, that could be carried out in practice, analogous to the usual examinations of the stomach contents, and to advance by means of it the diagnosis and therapeutics of the diffuse intestinal diseases, in the same way as it has already been accomplished in the pathology of the stomach. The work while yet having many gaps, is far in advance of anything that has gone before, and less complicated. The book will be found interesting and instructive.

The International Medical Annual, 1906.—A résumé of the year's medical literature, by thirty-one department editors, with added articles by noted specialists. Substantially bound in cloth and fully illustrated by plates in color and black and white. Octavo, 700 pp., $3.00. E. B. Treat & Co., New York.

This is the 24th year we have been commending this excellent publication, and each issue seems to be an improvement on the predecessor, until now the work is about as perfect as possible. The dictionary make-up especially commends it to the busy practitioner. Part I. is devoted to materia medicia and therapeutics, with clinical indications for the use of drugs. Part II. gives an index of diseases, especial attention being devoted to questions of diagnosis and treatment. Part III. covers the field of sanitary science. The text is *multum in parvo*, in one handy volume and offered at a nominal price. We shall continue to commend the book unqualifiedly to our readers.

Appendicitis, declares Wallace, and quite rightly, is a surgical disease (*Jour. A. M. A.*, Mch. 31, '06). Every patient should have and is entitled to operative measures within forty-eight hours. To the rapidly progressive stage (third, fourth or fifth day) the Ochsner treatment is applicable, and this affords the lowest mortality. Ochner has with regard to this stage enunciated a sound surgical principle: lavage and peristaltic rest by rectal feeding; however, this principle cannot be made to apply to all cases in all stages. Operation in this rapidly progressive stage usually means rapid extension of the sepsis and death; peristaltic rest means a limitation of the lesion and a day most favorable for surgical intravention. Cases evidencing gradually subsiding symptoms should be deferred to a more favorable operative period. Operation should be urged in every interval or chronic case. In abscess cases two safe rather than one hazardous operation should be done. In diffuse peritonitis all dependent cavities should be carefully incised and drained and not flushed; and, secondarily, the offending organ should be removed.

CORRESPONDENCE

LEGAL UNITY OF THE MEDICAL PROFESSION.

To the Editor of THE MEDICAL TIMES:

Assembly bill No. 1715, introduced by the Committee on Public Health, is now pending, and the exceptional enlightenment of the present New York State legislature encourages us to believe that it has a fair chance of passage. This bill provides for a single state examining board under control of the regents and does away entirely with the present tripartite board and with the recognition of homœopathy and eclecticism as separate schools of medical practice.

Following so closely upon the professional reunion of the two divisions of the regulars in New York, this bill has an important significance and amply justifies, if any justification were needed, the efforts to reunite the Society and the Association in New York. Not so many years ago an effort to compel action by the Society looking toward reunion was met by a proposition to dodge the immediate issue but to formulate a grand plan of reunion of the entire medical body. This plan was criticized as being in analogy with an attempt to cement together four pieces of a smashed vase all at once; and the practical necessity was urged of joining together the two principal fragments first, letting them adhere firmly, and then trying to add the other fragments.

For over 20 years New York has witnessed the experiment of a tripartite examining board and the state recognition of three schools of practice. The experiment was a costly one, for it disrupted the regular profession in the state, it caused the estrangement of the New York Society from its daughter, the American Medical Association, and it led to the development of as much medical politics as could be imagined.

We believe that the experiment was worth the price. The tripartite method was admittedly a compromise measure, endorsed only because, for some eight years, the legislature, influenced by the plea of the homœopathic and eclectic schools, had refused to pass a law establishing the medical profession as a unit.

Under the circumstances we believe that the state legislature was right in this refusal. While it is true that the two dissenting schools, together, numbered not much more than a tenth of the total medical profession, the community as a whole could not disregard them nor suffer them to be legislated into a cypher. And we are not so sure but that the regular profession needed the lesson of tolerance and needed to have its pride of organization humbled.

At any rate, the tripartite plan has, all things considered, worked well. It has shown up many defects and inconsistencies, helped bring about a broader if less insistent ethical spirit, and tended to efface sectional lines by drawing them in an arbitrary way. It has been a case of *similia similibus curantur*.

Meantime, forces have been at work that have made it more and more apparent that the tripartite method was a temporary expedient. Medicine has been placed on a much stronger scientific foundation in the last twenty years. So long as medicine was mainly an art, and an empiric art at that, and so long as medicine as an art rested mainly on medicine in the concrete sense, there was opportunity for two forms of bigotry. On the one hand, the bigotry of catholicism could maintain that organization, numbers and antiquity, could formulate a schedule, composite from the ideas of many, which might not be widely departed from. On the other hand, the bigotry of sectarianism could hold that one universally applicable scheme might be devised, even by one man and certainly by a minority, however small. Every operation, every mechanical appliance, every germ discovered, every case carefully studied by an impartial student, has forced the realization that medicine must be broadly catholic and yet that mere majority opinion or authoritative utterance could not be considered infallible. Thus, every conscientious, intelligent physician has been led to recognize his fellowship with every other.

Again, the very fact of recognizing three schools of medicine has inevitably tended to bring about either actual unity or medical anarchy. As a permanent matter, there can no more be three schools of medical practice than of legal practice. If there is no one organization which is supreme and if two methods can secure legal recognition, any other method which can secure sufficient influence to be counted at all, can also, logically, in accordance with the spirit of the American government, secure equal recognition. As a matter of fact, Christian Science, Osteopathy and Optometry, have been dangerously near securing such recognition and, under the tacit implication of the tripartite system, not only these but any other cult of medicine must ultimately be recognized.

From the recognition of many schools of medicine, it is only a step to the old régime of free medicine, when any man or woman could hold himself or herself out as a practitioner.

We must not forget that, considered as a temporary expedient, the tripartite system has accomplished wonders in a transition period in medicine. It has more than doubled both the general and the technical education required of licentiates in medicine. So far as minimum requirements are concerned, it has done more than this. Up to about 1890, a man could engage in medical study if he were just above the state of illiteracy, he could graduate in medicine after about ten months' attendance on lectures, covering a total period of about 17 months, and with practically no laboratory or bedside instruction. He now must have a high school education, and, with reasonably long vacations, must apply himself to actual medical study of satisfactory kind, for a period of about three years and eight months. In addition, instead of a virtual inclusion of license with the medical degree, he must be subjected to a test which has actually excluded about 10 per cent. of all applicants.

Further than this, the New York law has afforded a practical precedent for other states which have, indeed, in many instances, not only profited by the excellencies of this law but have corrected some of its faults. At the beginning the majority of medical schools yielded rather reluctantly to the requirements of the law. Since that time, many weak schools have been forced out of existence and almost all of the extant schools loyally support the spirit of the law and ask for greater support in establishing higher standards. Indirectly, many evils connected with medical teaching, hospitals, dispensaries, etc., have been rectified.

Indeed, we question whether any compromise measure, confessedly far from perfect and urged as a matter of immediate expediency, has ever yielded such widespread benefits.

It should be fully comprehended that if the present bill passes, medical unity will not have been accomplished in the sense of driving all sectarians back into one catholic fold. The united profession will not possess the power of compelling allegiance to any one standard of practice nor even to the standard of ethics that is ideal. The so-called old school of practice has not for generations, pretended to compel adherence to any central authority nor to dictate even the decision of the majority as the practice of the individual. The individual has always been truly eclectic within the period of modern history. Still, the out-and-out sectarian, who has chosen to abide more or less difinitely by one method of practice, has practically been excluded from the fold. So, too, the man who has departed openly from the ethical standards of the profession has been ostracized.

It must be clearly foreseen that the professional unity exemplified in the present bill does not contemplate the conversion of the sectarian nor of the unethical practitioner. It does not force all physicians into one mode of thinking and of practicing. Something must be sacrificed of ideal conceptions of unity and professional conduct, but, as a recompense, all physicians who have attained a reasonable standard of competency will be placed, not only on the same level, but in the same category in the eye of the law. We believe that no risk of degrading the profession will be incurred, since over 90 per cent. are already in accord as to major points of the science and art of medicine and 95 per cent. in regard to matters of ethics. The preponderance of opinion in the former case is sufficient guaranty against the internal disruption of the principles of medical science and art, and, instead of the 5 per cent. lowering the professional standards of the whole, the influence of the 95 per cent. will be far greater than at present in elevating those who would reduce medicine to a commercial basis.

The unified standard of medical practice will also be an almost impregnable fortification against the insidious attempts of fanatics, charlatans and ignorant pretenders to receive legal recognition as practitioners. It will remove the specious argument of "fairness," it will establish the healing art as a unity of conception and yet with ample provision for individual freedom, even to degrees not sanctioned by conservative medical opinion.

No man, however base and eccentric in his notions, can be quite so dangerous either to the profession or to the community at large, if liberally educated and trained in medical science. Nor can he exert the influence for evil as an individual member of the profession, held in disfavor by the vast majority of his fellows, but with no actual restriction of his freedom of thought and action, that he can as a member of a martyred sect of cranks, whether his particular brand is more or less permanently excluded from legal recognition or is grudgingly acknowledged as a separate branch of the healing art.

The bill under consideration contains what is conceded to be the best definition of practice of medicine ever legally stated and this definition, if sanctioned by the passage of the bill, will once and for all time do away with all court rulings that have more or less supported the conception of methods of practice of the healing art that are not "medical."

7. "A person practices medicine within the meaning of this act, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate, or prescribe for any human disease, pain, injury, or deformity, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate, or prescribe for any human disease, pain, injury, deformity." The exception referred to applies solely to emergency aid and domestic attendance, and "to the practice of the religious tenets of any church." This last leaves a loophole for Christian Scientists and certain analogous practitioners, though obviously suggested by ritual circumcision.

The bill gets around the difficulty of meeting the requirements of various therapeutic systems extant or conceivable, in what seems to us a unique and ingeniously simple way. The candidate is required to pass an examination in anatomy, physiology, chemistry, pathology, etc., even surgery, obstetrics, gynæcology and diagnosis, but therapeutics of any kind is absolutely omitted. This is certainly Hamlet with the part of Hamlet omitted, and most of us would confess that we never should have thought of this means of cutting the Gordian knot and yet we can readily appreciate the fact that no examination in therapeutics can actually test the practical ability of a candidate and that there would not be one chance in a hundred that he could pass satisfactorily on all the various branches specified and fail signally on this one. Whoever devised this wonderfully simple and satisfactory scheme of eliminating the multiplicity of examining boards, certainly deserves the gratitude not only of the medical profession but of the community.

Some minor defects in the bill are apparent; even its English is not unimpeachable. But the present is no time to point out defects nor to suggest amendments. At the time of writing an insidiously worded bill to recognize osteopathy has passed the senate. The time for the adjournment of the legislature is near. Without radical legislation in the future, the present bill, if passed, will effectually bar the admission to the privileges of practice of the various superficial and fanatic sects. Even well meant and proper criticism of the present bill will, almost beyond doubt, prevent its passage at the present time. Once passed, those who have at heart the welfare not only of the medical profession but the health and life of the community, may breathe freely and such minor defects as may be found may be repaired at leisure.

The issue is one of more than local interest. Many states (37, we believe) have established single examining boards. None have recognized the essential unity and influence of the medical profession so clearly as will New York if the present bill becomes a law. We are on the rising tide of professional organization and professional influence and, if we take the tide at its flood, it will sweep away all serious opposition to medical solidarity and, during the ebb, if ebb there be, there will remain no more strenuous task than the clearing away of débris.

A. L. Benedict, A.M., M.D.

RETROSPECTIVE THERAPEUTICS

The open treatment of burns is advocated by H. Sneve (*Jour. A. M. A.*, July 1, '05), who eschews occlusive dressings and relies on asepsis and perfect drainage. The dangers in extensive burns are: shock; toxæmia; loss of function of absent skin covering; exhaustion. For shock, adrenalin is advised, carefully administered, to combat the vasomotor paresis; whiskey, morphine, strychnine and the like are warned against as poisons to the susceptible and already overburdened nervous system. (Why morphine?) Sneve would treat symptomatically. To drive the blood from the abdomen, drinks and enemata of cold normal saline solution; the hands and feet should be chafed and local warmth applied to the extremeties and to the nape of the neck. There should be a hot bath to meet the subnormal bodily temperature. The temperature of the room should he high. Hypodermoclysis (or saline infusion) may be necessary to give the heart more fluid to work upon. Sneve believes that toxæmia is directly favored by occlusive dressings, which retain the discharges and prevent perfect drainage; to this factor he attributes many sudden deaths. The dangers of an infection are negligible; the surface is at first well sterilized by heat, and later the granulations and crusts protect against invasion. The functional activity of the uninjured skin is also of the greatest importance; cold sponging and frictions are indicated to this end. Artificial heat should also be supplied during the first few weeks of a severe burn. For burns of a third degree there should be skin grafting. The diet should be nourishing. The measures in general should be supporting. Control the pain with morphine, if necessary (he finds there is little pain with this open method of treatment). The resulting cicatrices are smooth, flexible and skin-like. Everything should be kept from contact with the burned areas. No strong antiseptic should be used. All blisters should be cut away. Cleansing should be by normal salt solution. All second degree burns should be dried and dressed with stearate of zinc; all serous exudate should be wiped away until dry, brown adherent crusts are formed. All third degree burns should be exposed without powder and kept clean until granulations are ready for skin grafting. (We would note that if animals are bandaged after a wound they will do the best they can to tear away the bandage, if it is possible for them to do so; here one may perhaps find a hint from nature corroborative of the measures which Dr. Sneve advocates.)

In treating shock, Keen (*Therap. Gaz.*, Dec. 15, '05) has practically given up strychnine and uses in its stead adrenalin. Montgomery, after a preliminary dose of strychnine, finds a preparation of aseptic ergot effective, in which, next to intravenous injection of salt solution, he places most reliance. Martin prefers adrenalin chlorid in extreme dilution (1 to 20.000 normal salt solution), which is allowed to flow slowly into a vein. The effects are, however, transitory; and a repeated dose is generally necessary, from twelve to twenty-four hours after. A cannula may be left in the vein for this purpose. Da Costa would give adrenalin intravenously with salt solution, very slowly and gradually for a considerable time. Rodman would use only oxygen in mild cases due to anæsthesia and the operation combined; there should also be artificial heat with a decided lowering of the head. In moderately severe cases with one or two degrees subnormal temperature, but without great cardiac and respiratory involvement, enemata of hot coffee and whiskey or enterocylsis of hot saline solution, in adition to position and artificial heat, will generally suffice. If there be pain, a cold, clammy sweat and 96° or below, 1-6 grain morphine with 1-150 of atrophine should be injected. Hypodermoclysis may be used in conjunction with enteroclysis or substituted for it. A pulse which is short and jerky, above 130 and of poor volume, requires intravenous infusion of adrenalin chloride. Laplace sets the utmost value upon strychnine as a heart tonic; but it is not useful when the circulation is too weak to have it produce a stimulating effect. It is the best agent for reducing shock to a minimum during an operation.

A Manitoba health resort has been erected, states the *New York Medical Journal,* as the result of a meeting of Canadian physicians, in Winnipeg. This resort, "complete in every particular," will be situated upon the banks of the Assiniboine River, some eight miles from Holland. The preliminary cost is estimated at $100,000; the buildings will at first accommodate 100. Dr. Chown is the president of the Association, and Dr. Simpson, Dr. McDonald and Dr. Bell are also prominent in the movement. The situation is ideal for such an institution. It is in the heart of the sand hills, where there is always a clear and dry atmosphere. The buildings would be surrounded by a beautiful grove of spruce trees, while the land can, for a very small cost, be turned into a splendid park, with excellent opportunities for all kinds of recreation. The scenery is magnificent. The Assiniboine affords every facility for boating and fishing, while in the new district are the rolling Tiger Hills. It will be all very beautiful, evidently; but (to paraphrase a popular expression) we judge that the patient without a long purse had best not make application.

The treatment of leg ulcers, if carried out successfully, especially by the youthful physician at the beginning of his practice, will certainly increase in no small degree both his reputation and income. These are cases that often do badly through poor management and lack of persistent effort. They will generally get well by means of skillful and patient work on the part of the young surgeon, who will thus certainly earn the patient's gratitude. The cause must be sought. If this be tuberculous, diabetic or syphilitic, constitutional must accompany local treatment. The general nutrition must in all cases be looked after; anything obstructing the venous flow, such as constipation, must be corrected. The leg must be made surgically clean by means of sinol soap, followed by irrigation with Thiersch's solution. The foot should be elevated, preferably in bed, throughout the whole course of the treatment. The limb should be firmly bandaged *from the toes to the knee.* If possible varicose veins should be excised. Unhealthy or sluggish granulations should be thoroughly curetted, irrigated with Theirsch solution and dressed daily with a hot Thiersch pack. When the surface presents granulations, applications of bovinine pure should be made, about three times in the twenty-four hours. (Ryle, in *The Medical Fortnightly.*) Removal of sluggish granulations is very essential to cure.

Digitalis and Valvular Disease.—This drug, declares Goepp (*Amer. Med.*, Sept. 23, '05) acts on the vagus, the nerve endings, the myocardial fibres and on

the vasomotor centres. It lessens the number of beats, increases the length of diastole, strengthens the muscular contractions and causes a rise of arterial tension. Thus the amount of work done is increased, and the time during which the ventricles dilate is lengthened. A difficulty encountered is the antagonism between the action of this drug on the peripheral vessels and its effect on the central muscles. As soon as compensation is effected it should be discontinued; it may harm by overstimulating an already hypertrophied organ. One must distinguish between actual and functional hypertrophy. There are contraindications to the use of digitalis—hypertrophy with established compensation, fatty degeneration of the myocardium and high arterial tension. Goepp believes digitalis has no cumulative effect.

The administration of medicines at night is sometimes a matter requiring delicate adjustment: whether to awaken the patient from time to time for medication, or whether to let him enjoy sleep (generally speaking, the best of all medicines), must oftentimes be decided. R. Lanfer (*Bull. general de therap.*, Jan. 23, '06) finds that not only are the bodily functions modified, but that the course of disease is also affected at night. Some maladies are accentuated, as asthma; others are worse, as syphilitic neuralgias; others may give more pain at night, as acute articular rheumatism. A nocturnal therapeusis may therefore be in order. Fifteen grains of potassium iodide at bedtime may prevent asthmatic attacks, such as frequently occur between midnight and 3 a.m. The bromides (in milk) at eleven and at one in the morning may obviate nocturnal epilepsy. In a case of acute rheumatism, sodium salicylate given at midnight, at 3 and at 6 a.m. materially hastened the cure. In whooping cough, bronchitis, enteritis, and many other diseases, remedies are more effective at night because absorption is probably more rapid and elimination is on the contrary less active. It is also probable that the toxicity of remedies is greater at night when the alimentary tract is comparatively empty.

Tuberculosis in the lymph nodes has been studied extensively by F. Horbitz (*Jour. Infect. Dis.*, March 1, 1905). He finds primary tuberculosis of these glands quite frequent in adults, especially in the neck, and oftentimes in the abdomen. It often extends from place to place over a number of years and finally attacks the lymph node system. Pulmonary tuberculosis may be secondary in adults, the primary forms being in the other organs, and the infection occurring by way of the blood. (Here Horbitz agrees with many other students of the disease, some of whom declare, indeed, that the pulmonary type of the disease is almost never primary.) Primary infection may occur through the digestive tract and the throat, and more stress must be laid upon this than has formerly been done. Tuberculous infection in children, as well as in adults, is associated with local changes in the corresponding lymph nodes, and extensive dissemination may take place in various organs rapidly through the circulation, the local lesion being at the same time inconspicuous.

The diameters of the normal and the phthisical chest are compared in an important paper by W. A. Besseson (*Jour. A. M. A.*, Dec. 30, '05). The use of bony landmarks for locating chest diameters is accurate and easily applied. The use of median values for evaluating anthropometric data saves time and the results are more accurate than the arithmetrical average. Important points in the shape of the chest, as well as the movements and capacity, may be appreciated by observation of its principal diameters. The development of the human chest passes through various stages from the deep or dorsoneutral to the broad or transverse type. In the fœtus and infant the lower plane gives a greater depth and breadth than the mid-plane. The fœtus under 30 centimetres in length presents a dorsoneutral type of chest (it is deep chested). The new-born infant represents the transitional type (it is round chested). During the first five years of life the most notable change is the rapid widening of the chest in its transverse diameter (it becomes broad chested). At puberty the chest takes on an increase in length over the diameters (the adolescent becomes long chested). From eighteen to twenty-five the development of the chest is fairly uniform in all dimensions and represents the highest development (the broad long chest). The dorsoneutral diameter increases at an even rate from birth to maturity. The adult phthisical chest generally shows an arrest in development of the transverse diameter following puberty. The phthisical chest is a narrow one, tending to the rounded form, with a relative elongation.

The linen handkerchief, declares Dr. L. A. Berkan (*Med. Rec.*), is quite a dangerous bacteria carrier and preserver, chiefly on account of being stored in the depth of a pocket where a mild temperature, humidity, and seclusion of air and light contribute to the increase and spread of germs, such as those of pneumonia, tuberculosis, their frequent precurser, influenza and cerebro-spinal meningitis. The Japanese, who use paper handkerchiefs which are immediately thrown away, criticize our habit of using linen as uncleanly, thus preserving, as we do, our excretions. Still it would be awkward for the victim of catarrh to be carrying about several dozen paper handkerchiefs. Besides, what would the Health Department say if these papers containing excreta were distributed about the streets? As a matter of fact, those whose upper air passages are normal seldom need a handkerchief; witness the six-inch square contrivances which our gentlewomen carry, generally for ornament, almost never for use.

Intermittent Exophthalmos.—An interesting case is reported by E. M. Alger. An Italian woman aged 34 years developed exophthalmos suddenly while bending over to put on her shoe. She had nausea and vomiting, but the eye returned to its normal sight with vision unimpaired. Thereafter when in a similar position the accident would occur; but the eye would replace itself when she straightened up. In one attack ice was applied, whereupon blindness supervened; whether this was due to the applications could not be determined. Alger considers the subject carefully, and gives a bibliography. True intermittent exophthalmos is rare. Owing to changes in the orbital veins one eye is pushed forward to a greater or less degree out of the orbit into which it recedes again as soon as the venous pressure becomes normal, the process of recession being greatly facilitated by pressure on the eyeball in front. As possible causes of the orbital venous congestion are any factors obstructing return circulation and a weakness

of the wall of the vein, which might be either congenital or the result of disease. The treatment is largely palliative. Patients should avoid constricting neckwear, severe exertion and postures tending to cause congestion of the head. A snug bandage may be worn several hours daily. If vision is failing and the attack does not subside speedily, exploratory incision into the orbit may reveal a clot or a varix. Palpation may locate the latter, and the former may be suggested by the regular symptoms of retrobulbar hœmorrhage.

Kidney Surgery and the Utility of Diagnostic Aids are exhaustively considered by Chetwood, who makes some very important deductions: (1) In profuse suppuration or multiple abscess of either kidney, the question arises whether nephrotomy or nephrectomy should be primarily resorted to; this question can be decided only upon the merits of each case involved. (2) A very small remnant of kidney structure may perform a certain amount of renal function; primary nephrotomy and drainage will often give time to decide this question; some patients may sustain a secondary better than a primary nephrectomy. (3) General systemic infection is an indication for both primary and secondary nephrectomy. (4) As to lithiasis—the same rules may be applied in the treatment of the kidney itself as one employed in suppuration without renal calculi. (5) Nephrotomy is the operation indicated in aseptic lithiasis. (6) In renal tuberculosis the only resort, even when there is a vesical and pulmonary involvement, is nephrectomy, when the integrity of the opposite kidney is established. (7) In urogenital tuberculosis removal of the primary focus, which is frequently in the kidney, is likely to exercise an inhibitory influence upon the distal implication—as, for instance, vesical involvement. (8) In subcutaneous injury to the kidney, where there is evidence of a peri-renal tumor with hematuria, immediate exploratory incision with suture and temponade (when possible) should be done. (9) Total nephrectomy may be necessary where the vessels or ureter have been ruptured and the laceration of the kidney is extensive, or where there is beginning or progressed suppuration. (10) Most authors favor conservative operation; and symptomatic treatment is considered favorable in mild cases. (11) One should resort to exploratory incision in all doubtful cases and should extirpate only when necessary. (12) Too much stress cannot be laid upon the importance of the refinement of diagnosis and the advantage of having recourse to the most improved methods of investigation.

Hyperchlorhydria is present in one-half the cases of digestive disturbances, declares Lichty (*Am. Med.*, Oct. 28, '05). With this condition are oftentimes associated hysteria, melancholia and hypochondriasis, some of the organic nervous diseases, (such as tabes), gastric ulcer and diseases of the gall bladder and bile ducts. The anatomical lesions in this aberration of secretion are not constant, varying from no change whatever to a proliferation of the glandular elements. Lichty maintains that hyperchlorhydria proper is always associated with a neurotic condition; and that where there is a hyperacidity and no associated neurotic condition the earliest stage of chronic gastritis is to be dealt with. Recovery follows rapidly upon prompt and proper treatment. Hyperacidity is a frequent condition. Hyperchlorhydria is difficult to diagnose; an analysis of the stomach contents is here essential and the diagnosis must often be withheld until the course of the condition can be observed. The treatment must be persistent. The prognosis is good with regard to relief of symptoms; so far as overcoming the acidity is concerned, it is unfavorable.

Housing and tuberculosis has received attention by Noir (*La Trib. Med.*, Nov. 18, '05). In a corner of old Paris occupied by paupers there are in seventeen streets two hundred and fifty-one houses, most of which were built before the eighteenth century. Their unhygienic condition is notorious. They are five or six stories high. In three-quarters of the cases each family has but one room which is a combined work, dining and bed room, a kitchen and sometimes even an infirmary. In eleven years 105 persons have died of contagious diseases and seven times that number of tuberculosis. Noir demands the destruction of these unhygienic structures and the substitution of light and airy houses for them.

A case of food poisoning is narrated by Kennard (*Brit. Med. Jour.*, Jan. 13, '06), who saw the patient the morning after a hearty supper of fish, meat, wine and ice cream. He had been all night in a state of coma, with stertor, absence of all reflexes, contracted pupils, weak and rapid pulse, normal temperature and distended bladder. He was catheterized and purged. In about four hours he vomited freely and his reflexes gradually returned. A mild broncho-pneumonia followed, but health was fully restored in ten days.

The "Home Sanatorium" is the subject of an excellent paper by J. H. Pratt (*Bost. Med. and Surg. Jour.*, Feb. 22, '06), who would carry out the regulations essential to the sanitorium life in the homes of the poor in a crowded city. The usual tuberculosis dispensary, he declares, gives a little time to a great many patients; he would give a large amount of care to a few. To this end he has organized a "tuberculosis class" in a Boston church, which finances the plan. Strict discipline is maintained, and every detail of the patient's daily life is supervised. A nurse visits the class members, who are not accepted until either tuberculin or sputum examination has established the clinical diagnosis. Admission has not been restricted to incipient cases. The applicant must promise to give up all work, live outdoors, and obey all the rules. A nominal fee of two dollars per month is required. Dr. Pratt's plan is feasible in any community; details of his treatment are given in his paper.

In earache the patient should be kept quiet, put to bed, placed on a fluid diet, and treated as one would a patient with a high fever, states Bardes (*Med. Rec.*, Jan. 20, '06). The bowels must be kept open; a single dose of morphine may be given to insure rest and comfort; either dry heat or an icebag should be applied to the ear (the former is preferred by most patients). Every three hours the ear should be gently irrigated with bichloride (1-5.000); following this a few drops of a 12 per cent. solution of carbo-glycerine can be instilled. The pain should certainly not continue beyond twenty-four hours. If it persists and the drumhead is inflamed and distended, palliative measures are much worse than useless. Surgery is then imperative; there should be free incision rather than simple puncture.

Smallpox an Expensive Disease.—The New York *Medical Journal* comments upon the comparative cost of smallpox and that of its prevention. Outside the cities and boroughs, it costs the State of Pennsylvania, at the lowest estimate, $350 for each individual quarantined to prevent the spread of the disease. The 5,841 cases which occurred in the country districts of this commonwealth cost, therefore, more than $2,000.000. In the little mountain township of Dunbar $5,000 was spent in the suppression of smallpox in one year, which represented a tax of $314 on every man, woman and child in that community. To this should be added the serious money loss involved in the interruption of traffic and travel, and the greatest loss of all—that of 446 of the inhabitants.

Thorough vaccination would remove the disease and all the distress and loss attendant upon it. Dr. Dixon, the commissioner of health of the State of Pennsylvania, reported: "Recently it cost Williamsport $284 for each one of eighteen persons who had smallpox, making in all $5,132. On the other hand, 3,499 persons were vaccinated at a cost of twenty-nine cents each. Every successful vaccination prevented one possible case of smallpox, which means that a possible expenditure of $284 was saved by an expenditure of twenty-nine cents." In Shenandoah, after smallpox had prevailed as an epidemic for seven months, the authorities, becoming alarmed at the expense, enforced compulsory vaccination. "The result was an abrupt cessation of the epidemic, and in four weeks they were able to close their smallpox hospital."

A case of thoracic aneurism is reported by Collet and Gruber (*Lyon Medical*, Dec. 31, '05). A man of 73 years presented signs of broncho-pneumonia and rather obscure cardiac symptoms. He died suddenly. On autopsy an aneurism of the lower part of the thoracic aorta as large as a fist was found. It occupied the space between the sixth and twelfth dorsal vertebra and terminated two or three centimetres above the origin of the cardiac axis. Its cavity was almost wholly filled by a large firm clot, which was very adherent to the wall.

Tuberculous Bronchial Glands in Children are considered by Thompson (*London Hosp. Gaz.*, Dec., '05), who finds that of fifty cases of fatal general tuberculosis, 78 per cent. showed the oldest lesion to be in these glands, while in not a single case were the cervical glands the cause of the fatal result. Early diagnosis of this condition is, therefore, of the utmost importance. There is emaciation, languor and evening temperature, with fatigue. The enlarged glands may press upon the blood-vessels, the nerves and the air passages; such pressure may cause pain behind the first bone of the sternum; that on the nerves causes paroxysmal cough; that on the veins may induce lividity of the skin above the clavicle, with nervous engorgement over the front of the chest; that on the trachea and large bronchi may induce dyspnœic attacks. The physical signs are dulness behind the manubrium, marked tracheal breathing over the sternum conducted to the surface by the enlarged glands, and a continuous venous hum produced by pressure on the large veins. The X-ray may be of value in diagnosis. The prognosis is not unfavorable if the case be taken early in hand. Treatment: change of climate as early as possible; diet should be rich in fats and proteids; cod liver oil and iodide of iron may be tried; iodine may be painted over the manubrium, and mercurial inunctions made at night into the axillæ.

Atoms, Electrons and Ions are terms well defined by Prof. Soddy (*Scientific American*): The first and oldest conception of the ultimate union of matter is the *atom*, the smallest particle of an element capable of separate existence. The essential feature of Dalton's conception was that the atoms of the same element are all exactly alike in mass and every other property, but are recognizably different from the atoms of every other kind of element. Text-books of chemistry, written long before the recent discoveries were foreshadowed, stated that if it is ever found possible to transmute any one kind of atom (elemental matter) into any other kind, there is little doubt that the same means would be sufficient to transmute or decompose the other elements. The modern conception of the ultimate union is the *electron;* and this, although by origin an electrical conception, is in reality a material conception no less than the atom of matter. The electron could be defined as the smallest existence known capable of isolation and of free movement through space. It is a definite amount or "charge" of negative electricity—the smallest possible amount known to exist; for electricity, no less than matter, has been shown to consist of discrete particles or units, and not to occupy space continuously. Unlike the atoms of matter only one kind of electron is known, consisting of the same amount or charge of negative electricity with identical properties in all its various manifestations. Each atom of matter contains in the normal condition at least one electron, which it is capable of losing, and conversely that it may unite with at least one electron more than it normally possesses without deep-seated material change. An atom with one or more electrons less than it possesses in the normal state is positively charged and is called a positive *ion;* an atom with one or more electrons in excess is a negative *ion.*

Dr. Robert Ogden Doremus died recently in New York City. His career was an inspiring and a suggestive one for the physicians to contemplate. His family is one of the oldest in New York, dating back to Anneke Jans in 1643. He was born on Bowling Green more than eighty years ago. After graduation from the New York University, he became assistant to Dr. Draper and at the same time continued his medical studies in the office of the then celebrated surgeon, Dr. Abraham L. Cox. In 1847 he visited the leading laboratories and chemical factories in Europe in the guise of a workingman; and in 1849 he introduced a chemical laboratory in the Free Academy, which afterward became the College of the City of New York. He retained his professorship of chemistry in this college for more than fifty years, and taught more than 50,000 students. Since 1861 he has held a similar post in the Bellevue Hospital Medical College. He was a great experimenter, though he was greatly handicapped by having only one arm. He was one of the most brilliant scientific lecturers in his day; and was in manifold ways an exceedingly popular man. He was a great lover of music and was one of the founders of the Philharmonic Society, which had charge of the music at his funeral. He himself played the cornet with no small skill. He was a member of many clubs; and he and Mrs. Doremus were thirty years ago leaders of New York society.

MISCELLANY

The new Virchow Hospital in Berlin, it is stated, will have 800 beds; its total cost will reach five millions of dollars. We read, *mirabile dictu*, that the attending physicians will have annual salaries.

The "red bug disease" has been studied by Dr. L. Sells, as it appears in Panama. This microscopic object burrows under the skin, and causes an irritation, and is believed in some cases to have led to insanity.

A medical social settlement has been established as a philanthropic move in one of the most congested districts of the West Side, under the auspices of the Chicago Tuberculosis Institute. Dr. Arnold C. Klebs originated the idea.

After incision of a large furuncle, states our indispensable contemporary, *The International Journal of Surgery,* the wound should not be packed with dry gauze, since this is apt to interfere with drainage, and its removal causes great pain.

The harmfulness of beer and tea are compared by an English physician, a man, we suspect, of some experience. He believes that the moderate use of the former is less harmful than that of tea; and that immoderate tea-drinking causes more pain, suffering, ill-health, and nervous breakdown than the excessive consumption of beer.

Rachitis, states King (*Jour. A. M. A.,* Apr. 7, '06), is entirely preventable and should not be associated with mollitis osseum; the processes are entirely different, one being the destruction, the other non-formation, of bone. In the pathology we find interrupted nutrition both in and outside of the child; the malassimilation produces permanent alterations.

A Liquor Tax on Medicines has been imposed by a Connecticut law. All venders of patent medicines which contain a considerable percentage of alcohol have now a heavy license to pay—$25, as for retail liquor dealers. The county commissioners of the state have decided in addition that where a government license is required, a state license must also be taken out, necessitating an annual increased expense of from $250 to $500, acording to the population of the town.

Balsam of Peru and Castor Oil are very useful in surgery, as a dressing for felons, paronychia, deep burns, abscess cavities, tuberculous glands, and the like; the proportion is half a dram of the oil to one ounce of the oil. The smell of iodoform in this invaluable mixture is disguised up to the strength of ten grains to the ounce. Hubbard (*N. Y. Med. Jour.,* Mch. 10, '06) finds this balsam-oil mixture of no value in eczema and not a protection against erysipelatous infection.

Camphor and Phenol make, with the addition of absolute alcohol, a permanent solution of oily consistency, not caustic and without the odor of phenol. It will keep indefinitely in well-stoppered bottles; but exposed to the air the camphor gradually escapes and the solution becomes more and more caustic. It is used as a dressing for infected wounds, and as an application to erysipelas. It may (*Med. Bul.*) be simply brushed over the surface or applied on a layer of absorbent cotton, covered with gauze, and changed twice daily. The proportions are: Acid carbol. pur., 30 parts; camphor, 60 parts; absolute alcohol, 10 parts.

American nurses were greatly and justly praised by Professor Lorenz, who declared that never until he crossed the Atlantic had he known what a woman could be in the way of a nurse. "In Austria they are women of little education. Here in America they are ladies. Never have I been so amazed. They are in aprons and caps, but they are educated, they are refined, they are charming. Never have I seen such a thing—never!" We infer that in Austria no lady ever wears an apron or a cap.

The subway roadbed is in a filthy condition, at the stations at any rate. It is well recommended that remedial measures be taken. The roadbed should not originally have been covered with broken stone, which cannot be properly cleansed and which aids materially the natural subway conditions (darkness and the lack of fresh air and sunshine), in making the subway an excellent medium for germ propagation. A solid sheet of asphalt would have been much better —ideal, in fact; for it could have been thoroughly cleaned as often as necessary. Such a covering for the roadbed may indeed become an imperative necessity.

Ostwald on Football.—The famous German professor, on returning to Leipsig, after having delivered a course of lectures at Harvard, stated his impression that the personal interest of the students, next to their studies, is concentrated alone on sport, which "draws their attention altogether from intellectual or æsthetic pursuits. In the course of a single semester nineteen students fell victims to enraged brutal handling. At every American university is a sort of open amphitheater in which many thousands of spectators view the periodic football battles." An accurate and just observer is Professor Ostwald.

The new St. Francis Hospital, a splendid structure situated at St. Ann's Avenue and 142d Street, in New York City, was opened on March 1. It is conducted by the Sisters of the Poor of St. Francis, an order founded at Aix-la-Chapelle in 1845 by the late Mother Frances Schervier. It was in 1865 that the old hospital in Sixth Street was established. Since its very modest beginning (two dwelling houses) it has been maintained by the good women of this order in a manner so self-abnegating and altruistic that one is touched by the contemplation of their work. It is to be hoped that this beneficient institution may be continued through many generations.

The tyranny of fashion has been defied, so we learn, by the physicians of Rio de Janeiro. At a meeting of the "Club Medico" it was resolved that hereafter the medical men of the Brazilian capital should wear light white attire during the hot weather. (Our winter is the Brazilian summer). Theretofore no doctor could, it seems, without risking his reputation and practice, go about without a weighty black suit, a black cravat and a silk hat. The reform movement was really instituted by the German Ambassador, who sensibly adapted his attire to the weather. At first he was called a crank; but gradually it occurred to others that he was not such a fool as he looked; gradually his example was followed until the medicos adopted it. The best fashion is that which adapts the apparel to the season; they are beginning to understand that now, even in London, which is primitive in its conservatism.

PLACATING THE WHITE PLAGUE.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

RESOLVED: There is not any specific medicine for tuberculosis known, and the so-called cures and specifics and special methods of treatment widely advertised in the daily papers are, in the opinion of this committee, without special value, and do not justify the extravagant claims made for them, but serve chiefly to enrich their promoters at the expense of poor and frequently ignorant or credulous consumptives; therefore

Resolved, That a public announcement be made that it is the unanimous opinion of the members of this committee that there exists no specific medicine for the treatment of pulmonary tuberculosis, and that no cure can be expected from any kind of medicine, or method, except the regularly accepted treatment which relies mainly upon pure air and nourishing food.

COMMITTEE OF PREVENTION OF TUBERCULOSIS OF THE CHARITY ORGANIZATION SOCIETY.

Jan. 13, 1903.

In placard prominence and capital lettering the above announcement officially gazed at the thousands of interested visitors who honored the late tuberculuosis exhibition in Philadelphia with their presence. Compressedly this placard was a declaration of sanitary independence for all consumptives, present and prospective, and more distantly possible forever. Its basal and its keystone truths open to population the only vital corollaries on lines most effective, most economical and sensible and safe, from childhood to ripe old age, wherever and whenever the great white plague of civilization would be placated, arrested, subdued, shunned, exterminated. There it is—the basal element of exemption from the scourge of tuberculuosis—decent air for breathing lungs, sanitary air, fresh air, pure air with its vitalizing gifts to humanity. With all due deference to the holy church fathers who proposed to build only from the immaterial spirit, I solemnly believe that they would have promoted human happiness in the world and the greater success of Christianity had they considerately incorporated into the Apostolic Creed the Creator's salvation of a pure breathing-air environment for the human family from birth to death. There it is—the sanitary rock of ages—the basal element of exemption from tuberculosis—decent air, clean air, fresh air hourly for the lungs, pure air with its vitalizing gifts to mankind! What an opportunity for teaching practical righteousness was overlooked!

In January, 1906, we had in Philadelphia the Pennsylvania Tuberculosis Exhibition, under the auspices of the National Association for the Study and Prevention of Tuberculosis. Thousands of interested people attended this exhibition—eager to see what tuberculous lungs looked like—eager to hear how the disease may be relieved, or cured, or prevented. This exhibition was located in the business centre of the city, on a great thoroughfare, was elaborate in the earnestness of its demonstration, continued for ten days, and was made a popular feature of public attraction. In practical effect the exhibition accomplished emphatically more in the study of, than in the cure or prevention of, tuberculosis. The harp of every lecture seemed helplessly strung on the gimlet of the boring bacillus! Unfortunately that seemed to be about the sum total of expert knowledge. Instead of elaborating ground-floor conditions that naturally develop consumption of the lungs, the bacillus was made the hook on which to hang the initial and ultimate in the arguments by special lectures. There were about ten special lectures patronized by audiences ranging from one hundred to two hundred at each. The scope of discussion was finely chosen. For each hundred present there should have been a thousand—business men, store women, mothers of families.

I here recite the subjects wisely chosen: "The State Control of Tuberculosis." An infeasible project as futile as the guillotine as an alleviant for the development of disease. A whole lecture lost in talk—TALK! "Tuberculosis in the School." Treatment: Avoid crowding—debar children from tuberculous families—attend to ventilation—disinfect the schoolroom with something unfit to breathe, but be sure to SCOTCH out the bacillus if one lurks around somewhere—and there you are again! "Tuberculosis and Railroad Travel." An exhaustively pregnant theme treated blindfold. How? Suspect by whom you are seated—fancy some invalid is aboard bound for a sanitary El Dorado—imagine that the car air is infectious and hold your nose in a suffocating antiseptic sponge that shall trap any source of contagion—and there we are again shying off a possible bacillus till the car can be next disinfected with a germicide! Not a word—not even a suggestion concerning the smite of locomotive gas and soot and other form of fuel débris that altogether grind the life out of the lungs in the stuffiness of car travel when any long journey is undertaken. Next we have in the course "Tuberculosis in the Store." "Tuberculosis in the Workshop." Both addresses were very timely, and should be pressed unrelentingly into the consciousness and religion of every employer of anemic flesh and blood and beating hearts to stand behind counters in smudgy storerooms surfeited with merchandise dye-stuffs and the fœtor of staled rebreathed lung air from customers—an unsanitary condition that directly and exactly leads the destructive process of tuberculosis and evolves into visible existence this bacillus that under sanitary protection could not exist. And what is divulged of the store situation finds its counterpart in the workshop as a disintegrator of lung integrity. Two more lectures, supposedly learned, shying off the bacillus of fellow workmen, fellow saleswomen with a cough, but stupidly contracted and deficient in showing the people that the air that destroys the vitality of blood corpuscle in the lungs is the smiter of the lung tissue itself—is the dragon that consumes the life, the incubator that makes possible the "pathologic germs" that come and go as conditioned by the waste of disease. Then followed "Tuberculosis in Children." An instructive appeal to mothers in general terms variously repeated in health columns in newspapers and magazines regarding the importance of outdoor air, baths, "proper" clothing, "proper" food, avoidance of associations with the consumptives of community—but I did not hear one word said in regard to the depraving elements poured into the breathing-air of the household by mismanaged heaters, ranges, gas stoves, kerosene stoves, with close rooms, shut windows, night lights, specific expression of exactly

what it is that makes the homes of children unsanitary and compels most of the illness they bear or die from in tender years. The word "ventilation" is a conventionalized term. There are mothers who fancy they are models of propriety in their home-keeping. I have asked some such: "How do you freshen your house air?" Note the cogency of their usual reply: "Oh, I always air the house well every day—I open the windows of the bedrooms while I am making the beds!" "Why do you confine yourselves and the children to such close house air during the evenings? I notice that all the windows are shut. The shutters are closed and barred. Even the blinds are down and the gaslight started inside, though it is scarcely yet dark?" Listen to the domestic logic: "Oh well, night air is not considered healthy—besides, we always close our shutters when it is time to light the gas—somebody might look through the window!" Thus we see how many children as well as mothers are dragged into the preparation for subjects of tuberculosis—without the starter fad of a special "germ." Instead of generalities, the people need specific, direct, from-the-shoulder-out explanations of how their home and their workplace habits render their breathing-air environment positively injurious to lungs and blood, to heart and nervous system. But put it down as a stupifying fact that when learned lecturers pour out eloquence to the household laity larded with technicalities about bacteria and bacilli inhaled with any chance breath that may be or never be, it is like the pattering of rain upon the roof—of no particular account so long as the tin sheds the water. But when you unsaddle from your stilted steeds of science, and in plain phrase explain how it is and why it is that poisoned house air impairs the vitality, induces the illnesses, murders the lives of the dear ones at home, even to those who die of consumption, they begin to think that you have discovered common sense that can be comprehended.

At this tuberculosis exhibition was also displayed many styles of shacks or wooden tents planned to afford tuberculosis patients with an inflow of fresh air day and night, wet or dry. Any one who has had the experience of army life, as has the present writer, would welcome at a glance the prospective comfort of one of these numerous shacks in the camp. Our little ten by eighteen sheet iron stoves would almost instantly warm our canvas tents in cold weather. The trouble was not in the heating appliance, but which way the wind would come against the outlet of our smoke pipe. In army life we were supposed to be hardy enough for service; but these modern shacks are provided for men and women with lungs collapsing with the disintegrations of tuberculosis. There were shacks furnished with stoves within a few feet of the patient's cot—how about backing winds against the open ends of the smoke pipes to drive the smoke and fuel gas directly into the shack itself and consequently into the consumptive's suffering lungs! Ability to get at fresh air is not the only consideration where the ravages of consumption are to be placated; enthusiasm needs a bridle when prancing the limit of venture to exposure to the elements temporarily faced with the stoicism of polar bears in straits of desperation. Any shack for consumptives with a stove in it near the patient, and a smoke pipe going out at one end at right angle, should be on wheels that might be turned from time to time to suit the way the wind blew. The Linford Sanatorium is warmed in rigid weather—but by the appliance of hot water heat, with no chance choke from smoke or fuel gas. In this sense, an established Sanatorium is superior to scattered tents that take weather chances against the comforts of civilized warming. We read of consumptive patients, bundled in blankets, sitting and sleeping like bums or prodigals in frigid air and snow—nursing the fancy that they are recovering from tuberculosis. Under the physical circumstances of such cases this forced expose is the impetus of over-confident temerity because of its novelty. Many of these people are prone to go down all the faster afterward if the disease is really developed. It is only the fittest in vital energy who successfully survive. Those who are reported "improved," but who go home from a fresh air cure resort to die, as many do, are never reported. In the handling of every good thing there must be discretion and reason in its uses. It is impossible in a month or two to transform a sensitive, debilitated man or woman into the hardihood of Highlanders to the manor born. When none but pure air is breathed into the diseased lungs, oxygenation is so well promoted that the lung tissue is afforded an honest chance to heal. Pure air, therefore, is the prime essential in fresh air treatment. If cool and in gentle motion, such air is the most invigorating tonic that the lungs can enjoy. But extreme rigidity of temperature requires a hardihood of constitution that the real consumptive does not possess, and is of no utility to the situation. A community of shacks for the individual privacy of health seekers, with their infirmities of cough and expectoration, each shack warmed at will with hot water heat to comfortable degree in seasons of chilling damp and rigid cold, by attachment with an adequate hot water plant, to no extent interferes with the regulated inflow of fresh air, and constitutes an ideal sanitary management for tuberculous cases. No hot air register conducting gassy and dusty heat from a heater or furnace can prove of benefit to diseased lungs. The use of an excoriating kerosene stove or gas stove in any shack or tent or room occupied by a case of tuberculosis is like a drawn sword to the lungs and heart of the victim. A physician in my own neighborhood has within a month died suddenly of wasted lung and hemorrhages because he did not comprehend that he was committing suicide by his unsanitary mode of heating his office and bedroom. I have often passed by his well-furnished house during evening hours, and felt dismay at beholding his shut-up waiting-room, which opened to his office, illuminated with the magnificence of Oriental colors from the foot-wide painted porcelain globe that crowned his richly gilded though pernicious big coal oil lamp—one more instance of the folly of decorative fad, and one more calamity of hastened death!—death by tuberculosis, as the post-mortem demonstrated! We will courageously chalk out the helpless bacillus—innocent bleb of ferment in the physical waste of degeneration through lack of oxygenation at blood temperature—when it, the bacillus, is credited as being the wrecking cause of this lung destruction.

But the greatest educator of the Philadelphia Tuberculosis Exhibition was the remarkable array of preserved post-mortem samples of lungs and other

parts of the human organization to demonstrate the exact stages in tuberculosis. Since no one dies at the beginning of consumption, the initial stage could not be exhibited. Through this fact gleams the hope and the chance of arresting and of curing tuberculosis by the simple life of abiding in pure or normally oxygenating breathing-air day and night, outdoors and indoors—supplemented with the digestion of abundant nutritious foods. The interest in the preserved samples of tuberculous lungs was far more intense than was the eagerness to listen to the lectures. A profound mistake was made by the managers by crowding the lung exhibit into inadequate space for allowing the public intelligent access to the specimens at crowd hours. People standing four to six deep, craning necks over each other's shoulders to get a glance and hear a word of the explanations, were compelled to go away quite as uninformed as when they came. When so instructive and excellently prepared exhibit of pathologic or morbid conditions was opened to the interested public, the specimens should have been arranged a yard apart, and with at least three demonstrators instead of one only in charge to make the explanations. The exhibit was not brought out to advertise itself—it was intended to teach.

Agents of the exhibition were attentive and active in the distribution of gratuitous literature on tuberculosis. Tract No. 5 starts out with the withering assertion: "Tuberculosis is a contagious disease." For the sake of hope and justice to the history of humanity, this bluff of blindfold doctrine I essentially doubt, and take the liberty to repeatedly and publicly deny. The zeal of this blind propaganda in modernized pathology is bred of bacilli visions ever on the brain of its promoters. Let us turn the problem over. There are so many minds that can think by suggestion and imitation, but seldom independently and logically. How this world is crippled by such limitations! We are warranted in affirming that, until within the immediate recent time, for a hundred years nothing logical and practical was done to arrest consumption among the populations who were subjecting themselves daily and nightly to the unsanitary breathing-air their lungs were compelled to handle in the environment of their homes and work or business places. Now then, if for this hundred years "tuberculosis, consumption, scrofula, decline, marasmus, wasting disease, inanition, lupus, white swelling"—I am quoting from the propaganda—were actually contagious and unabated, humanity would long since have succumbed to universal contagion and become no more till after Gabriel's trumpet. It is the idea of a starter "germ" for every considerable disease that has lighted the torch of this salaam to the bacillus god on every hill of pathological uncertainty and professional failure.

In the second paragraph of tract No. 5 comes the second biff at expectation of cure: "The essential cause of tuberculosis is the tubercle bacillus—without the tubercle bacillus there can be no tuberculosis; the tubercle bacillus must somehow or other find lodgment in the tissues of the human body before tuberculosis can exist." This is about as rational as to say: "Go to sleep, John—if you go to sleep you will get to sleep—else you will not have sleep!" If this tuberculosis propaganda had reversed its mainspring, and said: "There can be no progressive tuberculosis without developing its resultant bacillus," it would spell to humanity a consistent rationale of the disease that would convey relief to the mind from the pirates of contagion, would enhance the effectiveness of human hope, and would clarify every natural means for sanitary prevention or cure. Farther along in the official pamphlet occurs this sentence: "The principal predisposing causes to tuberculosis are indigestion, rundown system, nervous exhaustion, and the depression following typhoid fever, diphtheria, pneumonia, etc." The framer of this pamphlet may have been an amateur who did not comprehend that what breaks down the integrity of the lungs is what is breathed into them wholesale, locally, directly and indirectly, breath by breath. What must most lungs handle? Look at the dust—the constituents of most dust—its irritants, its powdered manures and grinding débris, its house sweepings and powdered sands. This conscientious pamphleteer takes no cognizance of the environment of smoke and toxic carbonic oxide or fuel gases mixed with the common breathing-air with which most lungs must contend day and night year in and year out! Add to this the rot of re-breathed air in homes, in crowded business work rooms, in schools, churches, conventions, theatres, social aggregations of humanity—what? Do you even yet require a speck of bacillus to start and carry forth the disintegration of tuberculosis of the lungs? Phew! Let us read a little further along: "Persons disposed to tuberculosis, if compelled to shake hands with a consumptive or handle anything that has been used by a consumptive, they should wash the hands before eating." Yes, washing the hands a dozen times a day is good general practice—but planting into the minds of the sensitive public the idea that cases of lung disease are on a par with lepers can but exaggerate the psychological preparation for contracting what it most dreads. This pathological blackmail about contagion of tuberculosis, by men who only pose the bacillus as the demon of health, do not or can not comprehend the daily aggressions of unhealthy air that grind to death the lung cells of consumptives, notwithstanding the fact that many are begining to joyously discern that the opposite of bad air, namely, decent pure air, is the rational relief and remedy for tuberculous disease. Tuberculosis a contagious disease? The wife of Robert Neilson Stephens, the modern novelist, to whom I have previously referred, faithfully nursed her consumptive husband for ten years to the hour of his decease. If tuberculosis is contagious because of its attending bacillus, should not that microbe have gotten its bite into her long ago? At last report from the widow, in London, ten days ago, she was in her usual good health. The present writer nursed his own wife through consumption to her last breath thirty years ago, but bears no sign ot tuberculosis yet—a pretty staunch refutation of this whim about contagiousness of tuberculosis. And as to heredity—my wife left with me three sons, children then, men in business now, none of whom show indications of tuberculosis. Breathing-air environment, not heredity, determines the family liability. A family may all go into this decline in similar way. Why? Because they are all flesh and blood, because

they were impressible by similar conditions, because their home and business habits and breathing-air environments were similar or alike, and so, also, the physical results. That is not heredity. The fact that one is not foreordained to die of the same disease that a parent or other relative died of, puts better vitality into hope than apprehension ever enjoys.

This tuberculosis exhibition was undoubtedly inspired by Dr. Lawrence F. Flick, chief of the Henry Phipps Institute in Philadelphia for the study, treatment and prevention of tuberculosis. A recent visit to this Institute convinced the writer that it serves more directly for the study of tuberculosis and care of patients, than for the cure or the prevention of consumption. For the practical study of tuberculosis, the Phipps Institute is magnificently planned and will accomplish a great purpose in a few years. I understand that no charity contributions or State aid are needed—all expenses being met by Mr. Phipps. The Institute is located in a poor, unhealthy, crowded part of the city, and in proximity to one of the slum sections, a community that has filled up with foreign element and where tuberculosis intensely prevails. The material is profuse, but unfortunately the building is unfavorably adapted to accommodate the work. Since the shout about "contagion" has been blared abroad, it would be difficult to find a desirable site and building in this city rentable for a consumption hospital. At the Phipps Institute a clinic is conducted in rather stingy quarters that smelled of carbolic acid on the first floor for outdoor patients who are under the management of the Institute faculty. Such patients are furnished with a printed copy of the rules that must be followed at their homes. A supply of tissue paper napkins is also given to each case to spit in, and paper bags in which to deposit the used napkins—all of which are to be burned together each evening. Inspectors from the Institute visit all the outdoor patients daily to see that the rules, thirty-one in number, are carefully obeyed. The rules are printed in English, Italian, Spanish and Russian Hebrew, to meet the needs of the nationalities that have recourse to the Institute for help. Rather in contradiction to the general idea of fresh air treatment for consumptives, we find the Phipps stocked with a varied drug store equipment, exceeding two hundred and fifty items of drugs and addenda. Pure air is not available in that location because it is not there, though a breeze from the Delaware sometimes reaches the location as a relief. I found no window arrangement as is adopted at the Linford Sanatorium in England—for indeed the building stands hemmed in so that only the front and the back must be depended on for air. Therefore, while every feature favors the study, the idea of prevention and cure are out of sight. Opportunities for autopsies are the consequence. When a serious case is admitted, an agreement is signed before witnesses by the nearest responsible relative in effect that in consideration of treatment and care at the Phipps Institute, permission is granted to the Medical Staff, in the event of death at that institution, for an autopsy. Therein consists the climax of the study. Every department of the body, every channel and organ and important tissue of the body, is subjected to scrutiny such as a most minute autopsy alone can afford. The autopsy blank report calls for data on two hundred and thirty-six different points of observation for study. The magnificent display of autopsy specimens already procured demonstrates about all that it is necessary to learn about tubercular degeneration in the human body. They suggest that outside of its service as a hospital resort for consumptives, the Phipps Institute, in order to put into operation the feature of prevention and cure of tuberculosis, should, within a year from present date, open a branch outside the smudge of city air to which all hopeful cases may be transferred for the advantages of a fair chance to outflank their disease.

With polite consideration of a leading lady nurse, I was conducted through the wards—male and female. In my opinion, about one out of every four cases was of a type that should not have been staying in such a place at all. The psychological depression of abiding among so many in the confirmed and in even the dying stages of consumption I believe to be entirely adverse to restoration. Besides, it is questionable advantage for any one moderately sick to be cotted among a crowd who are worse—many very markedly so. In the Phipps Institute it did not seem practicable to divide the long wards by cross partitions, because of the lack of side windows that would afford abundance of free air ventilation. Hence no sorting and separation of cases from the presence of each other was permissible, though the hollow coughs and wretched expectoration of sputem by the cases near the dying stage were distressful and sickening. The feeding end of the problem encountered no embarrassments. The varieties of foods were liberal, and the ad-interems between regular meals with large allowances of eggs and milk kept all stomachs busy taking stock for the capital of digestion. The kitchen and cooking are located upon the top floor, which releases the wards below from range fire gases and food odors. The heating of the Institute floors is by the hot water system and sanitary. In evidence of the amplitude of the Phipps Institute outfit, I will yet record that the House Inventory numbers the variety of two hundred and sixteen articles for use. Added to this comes the inventory of kitchen outfit numbering more than eighty articles for culinary purposes. The dishes report embraces fifty-two varieties of supply—the numbers of each not given of course. The variety—not the numbers of each—of articles used in the wards is listed at one hundred and fifteen. This is not all. The office inventory covers one hundred and twenty-eight different kinds of appliances; and the printing and stationery department is provided with sixty-two different forms of supply. If any of our friends contemplate founding a hospital or sanatorium for placating the aggressiveness of tuberculosis, they may consult the schedule of preparation herein cited for the care of fifty patients.

The history of each case at the Phipps is systemized to the fullest and most particular extent. I have never seen anything before that approached it for minuteness. The physical examination simply exceeds description unless one covered a whole chapter. One is rather astounded at seeing what all

may be included in a thorough study of tuberculosis. Dr. Flick, the medical director, has wrought a wonder by his records of investigative details scrupulously conducted from the day of entrance to that of departure. From family history and social relations and locations of dwelling places, a grasp is made to learn the conditions of health during first five years of life and the range of diseases gone through in childhood and youth. Then come considerations of all present symptoms and appearances, and a search of glands and the organs in general, with full explorations of chest and heart. The genito-urinary and rectal examinations for male and female do not allow a secret hidden in the sexual system of either. The nervous investigation runs from family history through mental attitude and cranial nerves, flexes and jerks, to delusions and dreams. The nose, throat and ear are subjects of detective scrutiny in all divisions of their structure, rarely equaled by an expert specialist when preparing a treatise. Detailed records of these examinations of individuals are written out and filed for keep—but with what ultimate advantage or purpose of which perhaps has not yet been decided.

Study, study is the primal element of the Institute in its present opportunities, but all that can be learned on that line should be accomplished in one or two years. I do not perceive any advantage in learning or repeating a characteristic condition over hundreds of times to merely repeat what is discoverable in twenty cases. It strikes the writer that the working schedules of the Phipps Institute are so elaborately minute as to be gigantic in the mosaics of their details. The excess of red ribbon details of analysis and records of merely individual cases, that are really non-essential to results, are over-cumbersome for general benefits. It is too much like critically examining and laying upon the drying shelf for specimen every splinter and chip by which to decide the quality of a load of wood. So much accumulated repetition does not advance the fighting line of knowledge. An expert diagnostician of consumption would discern as many essentials, if necessary, in twenty minutes, as this cumbersome method would reveal in six hours—covering as it does by actual count not less than three hundred points of investigation of the harassed victim who must be nearly dead by the time it is gone through. Now if we add the two hundred and thirty-five demonstrations required to fill out the autopsy report, we find nearly five hundred and forty markings for a common case of tuberculosis! What a hysteria for hide and hair while the enthusiasm for chase rules the day! I doubt if Dr. Flick himself is aware of the superfluity of investigation he has inaugurated as medical director. But the Phipps Institute is magnificently fulfilling its purpose as a school for study—its location and restricted conditions, where started, will absolutely prevent it from becoming a fresh air sanatorium for the cure and prevention of consumption. For this I feel sincere sorrow. That poor persons, whose sands of life are stranded in tuberculosis, may find a good home and kindly care there, and these mostly from the Old World, which dumps too many of its disabled afflicted upon our shores for support, is a supreme test of Christian charity—but wholly unnecessary for the welfare of American population. These foreigners abide in such a way that they breed disease broadcast, and then home themselves in institutions to which they offer nothing except their empty stomachs and diseased bodies for American sympathy and support. Offering their carcass for autopsy is the cheapest way in the world, that to them has ended, for acknowledging their sense of indebtedness to their benefactors so long as benefactors are needed for home comforts. The excess of hospital service is demoralizing and pauperizing this country—increasedly filling up with uncanny representatives of foreign population who bring with them to America not only their ignorance and dirt, but also their spirits of anarchism, cruelty and murder. The Phipps Institute is magnanimously doing service to such community of foreign squatters who have crowded better people away from that section of Philadelphia, who have ruined the values of real estate in that section, who have made of it an unsanitary area of prowling diseases, and who by natural unthrift lodge themselves at ease at the nearest door of comfort for help. Look at the necessity of printing the code of rules in three languages besides the English in an English speaking city! That is an important signal of what we are up to in this country. Doubtless this city is but a type of many others. Congested dirt, congested coal gases and coal oil smoke, untidiness in sleeping quarters and human crowding, malodorous persons and clothing, onions and pipe smoke and whiskey or beer, sweated skins and mangy hair, nests of decayed air and human rot for the lungs to inhale, there is nothing else needed to develop the white plague among these obtrusive people where hospitals for the care of consumptives can find everlasting material for study —if study is most needful. Occasion for less study would be more hopeful. If these crowders were scattered abroad from congested areas of the city, the fresh air of the country would soon reduce consumption among them. For the relief of tuberculosis a fresh air country life at raising corn and potatoes is far superior to treatments in a city hospital. Dispersion of the people from city centers is the open highway to sanitary living and human happiness. If millionaires who are building hospitals for public accommodation of the ailing, would instead apply thir means in providing ten acre fertile lots of ground on which persons with developing tuberculosis might home, rent free for one or two years, raise their own milk and eggs, make a plain livelihood by cultivation of soil in open air work, thrift and health would be more importantly promoted than can be won by the pauperizing process of building so many hospitals for the free care and treatment of persons whose habits of life breed in themselves the seeds of consuming disease.

1726 North Twenty-second street

A new tuberculosis serum has been attributed to Dr. Ishigami, an eminent Japanese bacteriologist. Unlike other antitoxins, this does not induce a rise in temperature. Dr. Ishigami declares that it has cured one-third of the patients experimented upon; it is not, however, applicable to advanced cases.

OUR KNOWLEDGE OF CANCERS—ESPECIALLY OF GASTRIC ORIGIN.

BY M. SHELLENBURG, M.D.

THERE are four problems in the cancer question. First: Is the number of deaths from cancer increasing? Second: Have micro-organisms any relation to the cause? Third: How shall cancer be treated? Fourth: What are the prospects of successful treatment?

There is a widespread belief among the professional and laity alike that the number of deaths from cancer is increasing and has been increasing for some time. Thus in England the Registrar General showed in his report that the registered number of deaths from malignant disease was two and seven-tenths times more in women and twice as frequent in men in 1891 than on the average for the decade 1851 to 1860. Dr. Arthur Neusliolme and Mr. Geo. King, two English authorities, have gone elaborately into the statistics of this subject. It is a problem difficult to decide, for our medical knowledge has advanced rapidly in fifty years, and it is difficult to compare different decades for the power of observation and diagnosis varies so widely in that period. Cancer is, of course, a disease of mature life; more people attain the "cancer age" than formerly, hence there are more people in whom there is the possibility of malignant disease developing. Monserrat claims that the statistics which have been collected by various authorities since the suggestion was made that cancer was on the increase now establish the fact that this condition really exists and that it is impossible to explain the returns in any other way. In England, Ireland and Scotland the annual death rate from this disease in the million living shows a steady increase. Thus in England the rate in 1877 was 486; in 1887 it was 615, and in 1877 it rose to 787. In Scotland it was 540 in 1883, 610 in 1890, and 770 in 1897. Ireland has always shown a lower rate, but it was 370 in 1881 and 580 in 1897. In this country Massey has gathered some useful tables from seven large American cities. In 1870 Massey found that the death rate from cancer in 1870 per 100,000 was 35.4 deaths, while in 1898 it was 66.4 in the same class of cases.

Of course we remember the old-time humorous definition of statistics, as to there being three classes of lies—lies, blank lies, and statistics; but nowadays they command more respect. But before they can be used to prove the actual increase of a disease, certain allowances and corrections must be made. For example, increased accuracy of certification must account for a certain proportion; thus the English Registrar General makes the following comments in this connection: "It seems scarcely possible to maintain the optimistic view that the whole apparent increase can be thus explained, and it must be admitted as at any rate highly probable that a real increase is taking place in the frequency of this malignant affection." Not only in the more obscure cancerous conditions of the viscera is the increase found, but in cancers of the breast and tongue, which were recognized as clearly twenty years ago as now, is the increase shown. Thus taking cancers of the tongue, the admissions to St. Thomas' Hospital, London, show that the disease has increased frequently five per cent. per annum. Moreover, accurate diagnosis has eliminated from cancer records many conditions previously confused, such as lesions, due to tuberculosis, actiniomycosis, or syphilis.

As I wrote above, improved sanitation and a more successful treatment of children's diseases has allowed an increasing number of individuals to reach the age when cancer occurs, so that corrections for age are necessary; thus if there are in a locality above the average number of people over forty, a corresponding proportion must be subtracted from the cancer cases before an absolute increase can be proved. In England they believe that the census of 1891 proved that the proportion of persons above forty-five had not increased since 1871, and hence it is as element not necessarily considered there.

Payne, in 1898, advanced an ingenious theory, which was that cancer killed those spared by a diminishing death rate from tuberculosis; in other words, that it is a condition of substitution. Since then, however, Payne has acknowledged that this theory is inadequate. Yet a recent study of the comparative statistics of phthisis and cancer in England gives some shadow to this belief, but elsewhere no figures give any comfort to the theory; in fact, in Scotland and in Ireland there has been no decrease in the phthisis mortality at all. Curiously enough in all these statistics the increased mortality affects men much more than women.

Sir William Banks suggested that an increase in luxurious living has been a cause for increase of cancer, the altering of the habits of life in later years. Thus there has been an increased consumption of rich, heavy animal food. This gives rise to a low form of gout, which may serve as a determining cause for cancer. He points to the fact that butchers, innkeepers and commercial travelers, all heavy eaters, show a considerable increase in mortality rates for cancer.

Cancer is a disease of the temperate zone, especially in the northern hemisphere, being almost unknown in northern Norway and Sweden and in Greece and Turkey. In Siberia and southern China it is rare, but more common in Japan and northern China. In North America the northern parts are exempt, but in the United States the mortality is large. It has been found that there are certain districts in England where cancer mortality is considerably above the average—that is, fifty-eight per cent. This high death rate is said to be associated with defective drainage of the soil and subsoil, and their contamination with sewage. Long-inhabited regions supply the larger number of cases. But no especial connection has been found between any particular geological formation and this disease. As an example of unusual prevalence, there is a certain street in Leamington, Engand, which developed five cases in ten years; also frequently second and third cases occur in the same house.

Taking up the second problem, as to micro-organisms, Adami, studying cell multiplication in its connection to tissue regeneration and the development of tumors, suggests three sources of origin of the cells of tumors. Adami defines tumors to be the result of aberrant tissue growth, due to certain cells assuming excessive proliferative properties outside of the needs of the human organism. The three sources of these cells may be: (1) Embryonic cell nests, which remain latent and take on themselves

rapid proliferation. (2) Mother cells, from which the fully developed cells of the tissue generally arise; these take on excessive proliferative tendencies, while the daughter cells retain the simpler characters of the mother cells. (3) The specialized cells may return to a simpler type and gain the capacity for proliferation in excess. Such reversion occurs in late adult life in glands. Adami believes that cancer is a sequel to causes inherent in the structure of the affected tissue. Thiersch has explained the prevalence of cancer in later life on the basis of altered relationships between the elements of tissues, whereby the connective tissue element becomes looser in texture and less resistant to any proliferative tendency in the epithelial element, so that the epithelial cells make their way into lymph canals and spaces. Unfortunately for this theory, the marked connective tissue proliferation found in many cancers is opposed to this idea.

Babes makes the excellent suggestion that the causes of cancer may be numerous; any initiation, either mechanical or chemical, may be capable of setting up epithelial prolification, providing the tissue has the predisposition. Shattock has experimented on this so-called "mechanical theory of the origin of cancer." His work on rabbits is well known; he points out that examples of displaced epithelium and the growth that may follow can be found in the epidermal cysts of the fingers and palm and in cysts following rupture of ovarian demoids. Such cysts show no malignancy. Again data is against this theory, for the papillomata following rupture of an ovarian papilliferous cyst are new formations pathologically and are contagious.

There is no doubt but that certain parasitic organisms with destructive characters are found in many carcinoma and often in sarcomata, too. Their morphological characteristics are well known, but we do not know their true classification or their cycle of development. Scientific proof is lacking of their etiological rôle in cancer, and the consensus of opinion now is that they do not produce cancer of themselves. Sjöbring has made an excellent series of observations on this subject; according to him, these organisms resemble no animal or vegetable parasite of any known description; he gives three types, amœboid, rhigopod and involution forms.

Where a direct connection between injury and the development of cancer has been shown, yet there is no light on the question of the specificity of the cause. It is natural to reach for a determining cause for a malady, and an injury is common to nearly all women, especially trauma of the breast at one time or another. In 713 cases Wurz found in five years only nineteen in which a distinct connection to a previous trauma could be established. Two of these cases are as follows: A man aged fifty was hit by a falling apple. Unlike Sir Isaac Newton, it gave him no inspiration, but only a wound on the left cheek. This did not heal and within a year the ulcer became carcinomatous. Again a man of sixty-eight was wounded by the horn of a bull; this did not heal up and some months later he developed a cancer at the spot.

Taking up now especially the subject of cancer of the stomach, we find clinicians generally divide this condition into three classes. (1) Latent cancer. (2) Cancer which shows itself solely by functional gastric disorder. (3) Cancer which besides interfering with stomachic functions exhibits definite physical signs.

A latent gastric cancer is generally associated with some other disease, such as tuberculosis, pleurisy or emphyrema, and the symptoms of this latter condition conceal the gastric trouble. Œdema in the legs is not uncommon, following the feeble cardiac action and anæmic state of the blood. Such a condition may suggest simply a fatty heart. A patient in my practice some years ago simply displayed a growing cachexia. He was a seafaring man and had been dissipated in his time. He lost flesh and health, developing a straw-colored complexion. Beyond an occasional pain in the abdomen he showed no symptom. At the autopsy, which came later, a latent cancer was found. Its presence was suspected, but it was impossible to demonstrate it in life. Trousseau places great stress on plegmasia alba dolens in these cases; in mine it was lacking. Of course, if small cutaneous nodules can be found it confirms the diagnosis, but they are frequently hard to find.

The state of the blood is diagnostic in these cases; in pernicious anæma the red corpuscles frequently fall below a million, while in cancer they rarely fall below two million; yet, after all, this is only comparative and not absolute. The reduction of the number of the red cells does not keep pace with the cachexia, while in pernicious anæmia, the cachexia does not keep pace with the reduction of the red cells. In all cases of obscure import, examination of the blood at repeated intervals is vital.

Phlegmasia alba dolens is liable to occur in these cases, due to the feeble cardiac action and the anæmia. This symptom, due of course to thrombosis of the femoral or other large vein in the lower extremity, may follow a more important cause, as pointed out by Henry. This observer examined the blood of a case of gastric cancer in which there was phlegmasia dolens of both lower extremities. The white cells numbered fifteen thousand, the red two million four hundred thousand per cubic millimetre. It was hard to get enough blood from the finger-tip, so Gower's color test was omitted. The ratio of white cells to red was both absolutely and relatively increased, being as one to one hundred and sixty. Numerous granule masses were observed, hæmatoblasts or blood-plagues. These are intimately connected with the necrotic process of coagulation, especially with the formation of thrombi.

The next group of gastric cancers show their presence simply by functional gastric trouble; in such cases the place of the disorder is evident and the diagnois lies between dyspepsia, chronic catarrh, ulcer and cancer. As a rule the symptoms are very obscure and insidious. They consist chiefly of unpleasant sensations and a sense of heaviness in the region of the stomach with loss of appetite. This loss of appetite becomes fairly complete as the case develops. As a rule vomiting is an early symptom, occurring before breakfast and often containing little, but some, forthy mucus. Later particles of food are ejected after the meal, or occasionally not for some time. This time for vomiting after eating may have a

diagnostic value in reference to the seat of the trouble; thus if the disease is at the cardiac orifice the food generally comes up in a few minutes after being swallowed, but if at the pylorus, it may be hours later. Constipation is a common sign, especially in pyloric cancer, although diarrhœa may occur late owing to the patulous state of the pylorus. Pain is a very common symptom and often is produced only by the passage of food into the stomach. Hæmatemesis does not appear until the disease has ulcerated, and may be entirely absent, especially in pyloric cancer, for here death comes by obstruction of the passage of food into the intestine before the stage of ulceration has arrived. In the text-books it is stated that the vomiting is generally of material looking like "coffee grounds," but as a rule I believe this condition to be rare. It occurs so infrequently that it is in the minority of the cases. All the other symptoms, difficult digestion, pain and vomiting, are common to gastric catarrh and ulcer; so that these conditions must be excluded. As a rule in chronic gastric catarrh, pain is not complained of when the stomach is empty, and the condition is much slower and more chronic than cancer and liable to improvements, during which period the general health is fair and the cachexia is always less marked. Gastric ulcer attacks the young, especially the female sex, while cancer is rare under forty. Vomiting of bright red blood and acute lancinating pain felt in the spinal region are common in gastric ulcers, also marked remissions may occur.

When we come to the third category of cancers of the stomach, we have those which not only show functional gastric disorder, but a tumor as well. Here the diagnosis is clearer and easier, for we have physical signs as well as symptoms, yet it often is a matter of great doubt and difficulty to settle this question, for a tumor in the epigastric region is not necessarily stomachic in origin. It may spring from the liver, the gall bladder, the intestine, the pancreas, the lymphatic ganglia or even from the aorta. We must exclude all these sources before we can diagnose properly. An hepatic tumor is flatter on percussion and rises and falls with the respiration; there is jaundice early which persists, which is a highly significant symptom. Should the cancerous nodules develop in this form, the diagnosis is generally easy. Tumor of the gall bladder, due either to impacted calculi or a carcinoma is farther to the right than any gastric cancers, while we may have a history of hepatic colic, followed by icterus. A cancer at the head of the pancreas which presses on the pyloric orifice is hard to diagnose, but there is absence of hæmatemesis and diarrhœa is common with characteristic fatty stools. Glycosuria would also point to pancreatic trouble.

An intestinal tumor below the duodenum is as a rule too low to be confused with gastric cancer, but when in the duodenum it is practically the same as a pyloric cancer. We would not be likely to confuse cancer of the omentum with one of the stomach, for it would be too diffuse and also felt in the umbilical region and the symptoms would be intestinal. The expansive pulsation and fruit of an aortic aneurism should detect its presence; the possibility of its existence in this region must be borne in mind.

At times enlarged lymphatic glands on the greater or lesser curvatures of the stomach may simulate cancer, but these tumors are rare, except in Hodgkins' disease. For all this, the diagnosis is often obscure, baffling and difficult. Here comes in the analysis of the gastric juice. Ewald demonstrated the absence of free hydrochloric acid from the gastric juice in many cases of cancer of the stomach, and this fact was heralded as an infallible sign of cancer. Riegel, however, proved this to be a mistake, and demonstrated the following facts. If the secretions removed by a sound from the stomach three hours after a simple meal of bread and water show free hydrochloric acid and normal digestive power, cancer is probably absent. If the digestive power is feeble, however, and free hydrochloric acid is lacking in the gastric secretions, it does not follow that gastric cancer exists, for the same deficiencies in acid and digestive power can be found in atrophy and amyloid degeneration of the gastric mucosa, in cerionic catarrh and nervous dyspepsia, all conditions of impaired innervation of the gastric glands. In transient nicotine poisoning or in seasickness free acid is apt also to be absent. To determine this point do not depend on the ejecta, but remove the gastric contents by use of a flexible tube passed down the œsophagus into the stomach. The reason of this procedure is that hydrochloric acid is normally not present in large amounts until the height of digestion, or about three hours after eating, while vomiting is apt to occur shortly after eating. Again after vomiting the chemical reaction of the gastric juices is generally altered by the bile and mucus. Absence of hydrochloric acid from the gastric juice is only diagnostic of gastric cancer when taken with other symptoms and signs. It is due simply to atrophy of the mucosa and the catarrh which follows cancer. I remember an extremely unfortunate case where solely on this sign a patient was operated on. She had a history of cancer in the family, but on operation nothing was found. As the surgeon had committed himself definitely to cancer on strength of the family history and the absence of hydrochloric acid, he was placed in an embarrassing position.

Diminished secretion of urea, according to Rounnelaere, is another sign of gastric cancer. He formulated the rule that when a chronic affection of the stomach exists and the daily secretion of urea falls below ten grammes cancer was present. Unfortunately, the excretion of urea may be as low in other conditions. An important point is enlarged lymphatic glands, which should always be searched for in gastric cancer. Troisier called attention to the enlarged supraclavicular glands, especially in latent cancer. Like other signs, they are chiefly of corroborative value.

Henry sums the whole situation up as follows: "Leaving out of view the stomach symptoms proper, which are often misleading, it is believed that a chemical and digestive test of the secretions of the organ, a proper examination of the blood, a careful search for enlarged glands and cancerous cutaneous nodules, and lastly a quantitative estimation of the amount of urea of the urine, will furnish facts sufficient for a positive expression of opinion in every case of real or alleged gastric carcinoma."

THE LATEST SUGGESTIONS IN THE TREATMENT OF CHILDREN'S DISEASES.

BY WALTER BERGER, M.D.

Part II.

As to intussusception in children, Fagge reports 18 cases; in 15 of these cases the diagnosis was easy and treatment was prompt. In one case a diagnosis of tuberculous peritonitis was made, and in consequence of this operative interference was undertaken too late. This was probably a chronic intussusception, in which the acute exacerbations were caused by an increase of the invagination. Two cases in which no tumor was found ended fatally, while ten of the 18 cases were of the single ileocecal type. One case was of the enteric type, and was of interest in that the ileum at the apex of the intussusception was so much narrowed as to suggest the possibility of a congenital stricture at that spot having given rise to the intussusception. There were 7 double intussusceptions, 3 colicileocecal, 2 ileocelic colic, and 2 enteric ileocecal; in one case there was possibly a triple intussusception, for the ileum was prolapsed into or through the ileocecal valve and there was a well-marked and apparent invagination of the caput coli some distance from the right of the valve, so that this may have been colic ileocolic colic and not ileocolic colic, as mentioned in the statistics. In seventeen cases a primary laparotomy was performed at the earliest possible moment; in the eighteenth the case inflation had been twice tried and failed. Except in two cases the incision was made on the right side of the midle line, with the center at or below the level of the umbilicus; in the majority it was through the right semilunar line. Six patients died between four and twenty-four hours after the operation from shock and toxemia, which in four cases was clearly due to the resection of the bowel. One of these patients was so ill that nothing more than the formation of an artificial anus could be attempted. In one case the cause of death could not be determined. Fagge's immediate results show a mortality of 39 per cent.; if in this list are included two babies who were readmitted within a few days of their discharge, and whose deaths were indirectly a result of the intussusception, the mortality increases to 50 per cent. Both these babies died twenty-three days after laparotomy. Excluding five irreducible and gangrenous intussusceptions, the mortality is 15 per cent. Clubbe has done one hundred laparotomies for intussusception in children, with sixty-three recoveries and thirty-seven deaths; the relative frequency of the various forms was as follows: Heocecal, 64 patients, 43 cured, 21 died; ileocolic, 12 patients, 7 cured, 5 died; 20 patients, 11 cured, 9 died; colic, 3 patients, 2 cured, 1 died; enteric, 1 patient, 1 died. Clubbe employs the side incision, except when the mass is in the transverse or descending colon, when the incision should be made in the middle line, the umbilicus being the center of the cut. To close the abdomen, he nearly uses through and through silkworm gut sutures with a Reverdin's needle. After the operation the patients are given morphin, 1-40 to 1-20 grain, repeated, if necessary. Strychnin is given hypodermically until the immediate shock passes; sometimes salines. Within twelve hours, the colon is washed out with a weak solution of permanganate of potash, nearly always producing a bowel movement.

It has been shown by statistics that 30 per cent. of school children possibly show some affection of the auditory apparatus; in most cases the source of these affections could be traced to causes that occurred before these children reached the school age, and the school directly had no special influence on the development of ear affections. Along with ear affections school children showed a great frequency of diseases of the throat and nasopharynx, especially the presence of adenoid growths which often were the cause of the ear trouble. School children should be examined periodically as to the state of their hearing by competent specialists, and teachers should also be instructed to warn parents of the importance of taking care of the ears of their children.

In the treatment of pneumonia in infants, Northrup summarizes his views as follows: 1. Castor oil to clear the field of operation; it is the first aid to the injured. 2. Fresh air, cool and flowing. It reddens the blood, stimulates the heart, improves digestion, quiets restlessness and aids against toxemia; regulate the temperature of the air in the room inversely to that of the child. The patient's feet must always be warm and head cool. 3. Plenty of water, inside and outside. Temperature as indicated by child's temperature. 4. Quiet and rest. 5. Correct the feedings to prevent fermentation and the formation of gas in the abdomen. If necessary, give high, hot salines. 6. Antipyretics: Water; no coal tar products. 7. Heart stimulants: Fresh air, hot foot-baths, relieving tympanitis and crowding. Hot foot-baths and hot salines can be given in a cold room; both can be given under bedclothes. 8. Drugs: Whiskey and strychnin. The first step is to establish a sick-room régime, avoiding extreme measures; temperature should be controlled by the use of a pack; the temperature of the water should be 90 F. As heart stimulants he uses strychnin and strophanthus, when they are indicated in heart weakness. The application of counter irritants to the skin over the thorax is of service in cases in which there is evidence of much bronchial congestion and bronchial inflammation and bronchial spasm. Kerley uses the old-fashioned mustard plaster, repeated every six hours, usually for the first forty-eight hours; after this time it is used frequently or discontinued. Expectant drugs should be given with great care, and when used should be prescribed in tablet or powder form. For a child one year of age Kerley occasionally gives 1-100 grain of tartar emetic and 1-40 grain of ipecac after feeding. In case the cough is severe and teasing and not relieved by steam inhalations, a small quantity, 1-4 to 1-2 grain, of Dover's powder may be added.

Acute nephritis complicating mumps may occur in either children or adults, and is much more frequent in males than in females; the parotitis is usually double and mild in character, and the nephritis is more liable to occur during early convalescence. Exposure to cold may be a predisposing factor and the nephritis is usually moderately severe, of less than one week's duration and ending in complete recovery. Rarely it may develop into chronic nephritis, or it may be so severe as to cause death. Miller advises that careful examination of the urine should be made and that strict precautions against exposure should be taken in all cases of mumps, both during the acute

stage of the disease and during convalescence.

Statistics showing the mortality during the first year of life to be 18.33 per cent. in the European states, and in the registration area in the United States 18.28 per cent., nearly one quarter of which are due to diarrhea. Curiously, in European countries the greatest mortality occurs during the cold months, while in this country it is just the opposite. The causes assigned are: 1, hot weather; 2, artificial feeding; 3, bacteria. Statistics also show that by far the greater number of deaths occurred in bottle-fed babies, being mainly due to the difference in the composition of the milk, and to the fact that even though the milk has been sterilized or pasteurized, the germs may be removed thereby, but the poison resulting from the germs has not. The treatment should depend on the form of the diarrhea and the length of its duration; the different forms may be divided under the head of acute dyspeptic diarrhea, milk poisoning, cholera infantum and enterocolitis are the treatment classified under four headings, starving, washing, resting and healing. Put the child on barley water until the vomiting and diarrhea have ceased. In order to remove the poisonous matter, if early, washing out the stomach; if later, the washing out of the intestinal canal by means of purgatives, etc., is of value. Food should not be given until the symptoms subside and then the best results will be secured by starting off with a cereal treatment with malt; of the remedies having a healing effect, bismuth is especially efficient. As to alkalies in infant feeding a considerable amount of the alkali may prevent all stomach digestion, forcing the task of digestion on the intestine, which, while often useful for limited periods, must necessarily interfere with the development of the gastric functions so necessary for the normal stomach if it is to become fitted to digest the solid diet of the adult. By adding a moderate amount of alkali, the task laid on the stomach may be limited to one it is able to perform. Milk diluted with plain water containing no alkali is promptly clotted in the stomach by the rennet ferment, and the clot is transformed into tougher masses when acid is secreted; lime water added to milk checks the immediate action of rennet and makes the clotting more gradual, altering the form of the curd and allowing, possibly, of the passage of some unaltered milk into the intestines, but leaves no large amount of alkali behind to check the stomach digestion. With bicarbonate of soda added to milk, the action of rennet, hydrochloric acid, and pepsin are all prevented by the greater amount of antacid present until this is finally neutralized; portions of the milk are not liable to get beyond the fluid state and continue to escape into the intestine, reducing materially the burden of digestion laid on the stomach or, if the alkalinity persists a sufficient time, relieves it entirely, the labor falling on the intestine. In the young infant the stomach is just beginning its functions, and the earliest secretion which acts on the milk is rennet. Hence, it is not difficult to understand the clinical effects of adding 10 per cent. lime water or two grains of bicarbonate of soda to the ounce, to the food of very young infants. The food is weak, in that the proportion of milk is small. The milk is decidedly alkaline, so that the rennet ferment will not act and the effect is to promote rapid emptying of the stomach; for whereas curded milk tends to be retained by the stomach, fluid milk tends to pass into the intestine. This assists in tiding the infant over a period of undeveloped and difficult gastric digestion, and as later the alkali is reduced, directly from 10 per cent. to 5 per cent. or from 2 grains to 1 grain to the ounce, and also as the amount of alkali relative to the milk is indirectly increased by augmenting the amount of milk in the mixture, the effect of the alkali is gradually lessened. The effect of adding alkalies to the food seems, then, to be that of influencing the place and type of the digestion of the food, and the problem which must be worked out in the near future will be to determine the proper kinds of alkali and the quantity of such alkali to be added to produce certain results.

Wethered wrote, fifteen years ago, that the treatment of scarlet fever, based upon the theory that the disease is due to a specific germ, is rapidly becoming more firmly grounded; this is shown by the fact that the complications which increase the gravity, sufferings, and death rate of scarlatina, may be rendered less frequent by timely and proper preventive treatment, this consisting of the early and oft-repeated application of non-irritating germicide remedies. The most scientific mode of applying the treatment is by spraying or irrigation with an antiseptic such as the peroxide of hydrogen, 1 part to 4 of water for the fauces, 1 part to 8 of water for the nares, used hourly for every half-hour, or with corrosive sublimate, 2 grains to the pint of water, employed every two hours within non-poisonous limits, or with some other non-irritating but efficient disinfectant; a nasal injection should always be warm. Smith has used as an antiseptic wash for the nostrils, with apparently good results, a combination of boric acid, sodium borate, and common salt, as in the following formula:

℞

Acidi borici	ʒij
Sodii boratis	ʒij
Sodii chloride	ʒi
Aquæ puræ	Oj

Misce. Sig: One teaspoonful to be injected into each nostril hourly.

In all hyperpyretic cases of scarlatina, whether its form be sthenic or asthenic, acompanied by pronounced nervous symptoms, an ice bag or its equivalent, a linen or silk handkerchief wrung out of the ice water every five or ten minutes, should be constantly applied over the head, so long as the temperature remains at or above 103 degrees. The ice bag should be about one-third full, so that it fits over the head like a cap. Add one-fifth part of alcohol to the water, or, as Henoch recommends, adding vinegar to it. At the same time as a potent means of abstracting heat, at least when the temperature is at or over 104 degrees, a similar application should be made around the neck, and especially along its sides. Cold applications over the great vessels of the neck, the jugulars, and carotids promptly abstract heat from the blood, while they diminish the pharyngitis, adenitis, and cellulitis. In sthenic cases, in which the extremeties have a pungent heat, a bright red color, active circulation, the limbs should be frequently sponged with cool water containing alcohol or vinegar. If the temperature with this treatment be not sufficiently reduced, the hands and forearms may be immersed in the lotion, while the patient is still in bed, or a double thickness of muslin or linen, frequently wrung out in ice water, may be placed upon

the hands and arms, which is soothing to the patient, is not attended by any shock, and, continued two or three hours, usually reduces temperature. Joynt advises that the throat and nares be thoroughly syringed out every three or four hours with a strong solution of boric acid in glycerin. After irrigation, he finds painting the ulcerated structures with the thick boroglycerin, or with glycerin of iodine, or better with glycerin of thymol (1 in 10.50), a valuable addition. Confinement to bed, free ventilation of the sick-room, a constant temperature of about 60 to 65 degrees F., milk diet, and flannel worn next the skin, are the broad principles of management during the acute stage. Free ventilation is an important point; a scarlet fever patient cannot have too much fresh air; the maintenance of a warm temperature is a secondary matter compared to it. A hot bath daily, and sponging the body over with acidulated water or a weak solution of glycerin, is refreshing, and enables the skin to act. Milk diluted with barley, soda, or lime water, or boiled, or made into whey, should form the staple diet. Panceatized and peptonized milk is more readily digested than plain milk. Cream is valuable for children. Beef tea often sickens and causes diarrhea in children; as ordinarily made it is stimulating rather than nutritious, but when prepared by digesting for a few hours, in a warm place, finely minced raw meat in water acidulated with hydrochloric acid, a highly nutritious fluid is obtained; eggs are excellent. Sipping hot water or coffee assuages thirst, and the patient should be allowed to drink as much water as he desires, provided the quantity is not excessive. Jamieson accelerates desquamation, and therefore shortening the infective period of scarlet fever. Carbolic acid in the proportion of 3 per cent. in ointment or oil, constitutes the most reliable agent. With this, however, should be combined daily ablution with soap and warm water, so as to remove as rapidly and as completely as possible the dry epidermic particles as soon as these become loose, the carbolized oil or ointment being rubbed on the surface after it is dried. A better means, however, lies in the action of resorcin. Rubbed on as an ointment, it did not produce the desired effect in scarlet fever. A resorcin soap, indeed, would have amply fulfilled the indications, but on inquiry it was found that there were chemical difficulties in the way of manufacturing such. When resorcin was incorporated with ordinary hard or soft soap a molecular change took place in the drug, its constituents broke up and formed new combinations; in fact, it was no longer a resorcin soap. But in process of time, by a simple procedure, Eichhoff succeeded in obtaining a stable resorcin soap. He found that when a soap was made chemically acid by the addition of salicylic acid, a moderate amount of resorcin quite sufficient for our purpose could be combined with it. A 3 per cent. resorcin salicylic superfatted soap is now prepared and when this soap is used to wash cases of scarlet fever, warm water being always employed from the commencement to the close of desquamation, a notable diminution of the period occupied by "peeling" follows.

A remarkable surgical feat was achieved by M. Quenu, a surgeon at the Cochin Hospital in Paris, who successfully stitched together the wounded parts of the heart of a young woman who had stabbed herself. The patient was able to leave the hospital in good health twelve days after the operation.

THE SUCCESSFUL TREATMENT OF DYSPEPSIA.

BY H. TAYLOR, M.D.

SOME years ago the well-known Dujardin Beaumetz published the reports of some simple measures which enable him to gain a knowledge of the chemical changes taking place in the stomach, without making an examination of the gastric juice, which is often a matter of difficulty. These are three in number: (1) The use of the experimental meal. (2) The examination of the gastric and intestinal gases. (3) The examination of the fæces. Dyspepsia, whether caused by a deficiency of certain chemical changes in the stomach and intestine, by want of functional power or by neuralgia of the nerves of these organs, may be divided into two large groups, irritative dyspepsia and a tonic dyspepsia. The first group is characterized by hyperchlorhydria, cramps, vomiting, pain and diarrhœa, while the second group by achlorhydria, paresis of the muscular coat, putridity, and, lastly, constipation. Dujardin Beaumetz advises in both these groups special diets, the use of baths, and antiseptic cachets. The diet should be vegetarian, being composed of eggs, farinaceous food, green vegetables and fruit. The severity of this regimen must be in proportion to the intensity of the dyspeptic symptoms. In very severe cases, only milk and eggs ought to be allowed, but in cases of medium severity, add starchy food, green vegetables and boiled fruit, and lastly in cases of a milder type, allow meat, well done, and meat jellies. As for baths, they may be used in all cases, either in the form of cold douches, or Scottish douches, or as warm, alcoholic lotions. He gives, where diarrhœa is present:

℞ Salol.....Cretæ Præparatæ, aa 10 gms.
Bismuth Salicycl.....2½ drs.
Sig. To be made up into 30 cachets.

In cases where constipation is a symptom:

℞ Salol.....Sod. Bicard aa 10 gms.
Benzonaphthol
Sig. To be made up into 30 cachets.

In cases where there is a great deal of flatulence:

℞ Benzonaphthol...Hydr. Magn aa 10 gms.
Bismuth Salicyl
Sig. To be made up into 30 cachets.

He gives the experimental repast after fasting in the morning, and every day at the same hour, being composed of the same kinds of food, either "café au lait" or "thé au lait" with a "crescent roll" and butter, according to the preference of the patients. The quantity of these food stuffs should always be the same. If functional troubles set in, it gives rise to a series of symptoms varying according to whether there be irritation of the stomach or atony of the organ. If irritation be present, there is a sensation of warmth, then of burning, with acid eructations; in severe cases there are real cramps, more or less painful, or vomiting appears. In atonic dyspepsia there are eructations having occasionally a very disagreeable odor, then a sensation of a heavy weight, which persists for a longer or shorter time. In both these forms of dyspepsia, intestinal troubles are produced, three, four, or several hours after the ingestion of the experimental repast. When such symptoms are produced after the morning meal, either in cases of irritative dyspepsia or of tonic dyspepsia, the patient should observe the greatest caution as regards luncheon and dinner. Banish meat from repasts and confine patient to eggs, carbo hydrates and vegetables. If he is accustomed to drink milk, he ought to have some with his meals, or he may substitute aerated alkaline water, either

by itself, or with the addition of a little white wine, or extract of malt. Should this first meal in the morning be partaken of without the least inconvenience, the patient can do without the cachets, and allow more latitude in his diet. Every intelligent dyspeptic patient ought with his doctor's guidance to be able to regulate his diet and his medicines according to the signs furnished by the result of the experimental repast, while an examination of the gases and the fæces will give information equally important to the dyspeptic patients. The gases generated in the stomach will, by their odor of putridity, or of acidity, enable us to form an opinion as to the presence of stomachic atony or irritability. As to the intestinal gases, their odor and abundance give us valuable information. The intestinal gases have sometimes an odor of putridity of great intensity and persistence, strongly reminding one of the odor of gangrene. Prescribe here salicylate of bismuth or salol. As regards the fæces, they are of the very greatest importance, and it is highly desirable that all houses should be fitted up with water closets of the kinds which allow of separation between solids and liquids. In a great number of dyspeptic cases, and particularly in gastric dyspepsia accompanied by diarrhœa, the fæces look greasy and have a putrid odor, different from that of healthy fæces. In irritative dyspepsia with hyperchlorhydria the fæces are characterized by another important feature, acidity. Healthy fæces are alkaline; but they may become neutral and even acid, which can easily be demonstrated by the use of turmeric paper. This acidity is due to the fact that the hyperchlorhydria of the stomach is such that when the chyme has passed on, the bile and the pancreatic juice are insufficient to neutralize it, and as the digestion in the intestine can be carried on only in an alkaline medium, two classes of phenomena may be observed as results. An incomplete intestinal digestion with colic and borborygmus; on the other hand, acid fæces. These acid fæces irritate, by their presence, the larger intestine which expels them more or less promptly; hence, frequent stools, the passage of which is accompanied by heat and burning at the anus. Just as in the case of the experimental repast, these signs may guide the dyspepsia patient; and whether the case be one of constipation, diarrhœa or acid fæces, he can easily regulate the treatment. Do not allow game, fish, molluscæ, shell fish, cabbage, because in the largest number of patients these food stuffs produce intestinal troubles, and particularly gases and putrid stools.

Probably five per cent. of all cases of stomach affections present more or less marked ærophagia; the subjects may be unconscious of it, merely complaining of the eructation of gases and more or less flatulence. Mathieu has established that frequently what they suppose to be an eructation is in reality an involuntary swallowing of air, for the flame of a lighted candle held to the mouth does not blow out, but remains immovable, showing that there is actually no emission of air. Some times the air is belched up as soon as it enters the stomach, or it accumulates until the distension becomes marked and the air escapes into the intestine with a characteristic sound. This swallowing of air may occur more than five thousand times during the day, but not frequently at night or when the patient is absorbed in work. The swallowed air may present the complete picture of severe gastrointestinal flatulence. The ærophagia of nervous dyspepsia, the spastic ærophagia of severe neurasthenia and hysteria and the secondary ærophagia accompanying a severe gastric affection are the various forms. As soon as the subjects can be convinced that their troubles are due to this cause they easily conquer it. The spasmodic swallowing can be controlled or prevented by keeping the mouth open, using something to serve as a gag, if necessary, but the underlying dyspepsia must be treated, and another indication is for measures to reduce the excitability of the stomach; preferring for this codien and "cherry laurel water," but morphin and other antispasmodics may be necessary. To abort an attack use a saturated solution of chloroform, given in tablespoonfuls at the beginning and during an attack, mixed with water, to a maxium of 4 to 6 tablespoonfuls a day. Antiseptics for the intestines are not needed, for the gaseous fermentations to which the flatulence was ascribed does not exist in reality.

Starzhesko found, experimentally, that bitters increase the psychical stream of gastric secretion, but it remains to be determined by further investigations whether this increase is the result of a simple reflex, or of a complicated nervous mechanism, involving the cerebral cortex. Small amounts of bitters must be used, for the administration of large doses has the opposite effect from that desired, and the repeated use of large amounts may produce a permanent hyposecretion in the stomach. Bitters must always be administered in such form as to excite the nerves of taste while the drugs are taken; the use of bitters in the form of pills and wafers or capsules is not rational; always give before eating, the best time being ten or fifteen minutes before.

Conventionality, fashion or habit too often determine the frequency of meals and the quantity of food taken; Rabagliati, based on his experience in feeding patients twice instead of three to six times daily, believes that a large proportion of sickness is produced by too frequent and abundant feeding, for three pounds avoirdupois is not a reasonable daily average of food, but one pound is nearer the proper quantity. The theory that each man is the best judge of his own diet is a poor one, while an exclusive milk or beef diet will eventually lead to waste or anæmia if the patient is kept at work. Bettman protests against the taking of large amounts of hot water, believing it harmful in cases of atonic dyspepsia, and only safe when the patient is well nourished, as then there is strong gastric motility. Both these contributions are valuable and timely, for many victims of dyspepsia will recover when meals are limited to breakfast and late dinner. The stomach requires time for recuperation, which is impossible if hearty luncheons are indulged in. The stomach tube proves that each man is not the best judge of his own diet. A healthy stomach may become hyperæsthetic and resentful, if for long time it is only required to manage soft and easily digested foods. Strength comes from use; but the other extreme is quite as harmful, and the digestive energy is squandered and weakened and poor digestion follows the indiscriminate and irregular eating of irritating and indigestible foods. As an example of the tolerance to which the stomach has been educated, Bettman cites a most extraordinary instance. A man, thirty-two years old, had for years followed the practice of swallowing glass and stones as an exhibition. He had taken nine and a half pounds of stones on a single occasion, without pain or discomfort. He was ultimately attacked with severe pain, was sent to a hospital, and sixty stones were removed from the rectum by means of the fingers and

a scoop, after which he made a good recovery. On the practice of drinking hot water, so much indulged in without definite reason, it should be said that there is authority for believing that very hot water acts as a temporary gastric stimulant. Warm water soothes an irritable stomach, and the emesis supposed to follow its taking in very large psyhical in its effect. Bulkley contends that milk taken an hour before meals, unmixed with other foods and unpeptonized, is absorbed at once into the blood without undergoing the process of digestion. If not already alkaline a little bicarbonate of soda should be added to the milk, and it is necessary for the patient to lie down for an hour after taking it. It is a fact that milk given in this way disappears very rapidly from the stomach. It is also known that unpeptonized milk is much more quickly absorbed from the rectum than is milk peptonized. These facts would seem to favor Bulkley's theory; but, on the other hand, it is well known that if milk is removed from the stomach shortly after it is swallowed it shows coagulation from the effect of the lab ferment. It is probable that digestion goes on so rapidly, and to the patient so unconsciously, that it has given rise to Bulkley's idea.

Moritz has pointed out that the resorptive power of the stomach has been overestimated, and for many drugs really amounts to nothing. The problem is how rapidly the drug will be propelled into the intestines where resorption occurs. Von Mering has shown that water and weak saline solution leave the stomach rather quickly, one litre disappearing in from one-half to three-fourths of an hour; a glass of water disappearing in twenty minutes, but when the water is acid or charged, or when it appears in the form of soups, milk, or beer, the stomach is stimulated, secretion begins, the pylorus closes, and absorption is delayed; water taken on an empty stomach disappears more quickly than when taken with food. The most rapid effect of a drug is produced when it is given on an empty stomach, dissolved and largely diluted with water. Drugs that are insoluble in the stomach, such as salicylic acid, are best given in glutoid capsules (gelatin hardened by formaldehyde) that are disgested in the intestin only; in gastric atony and dilatation it is futile to administer drugs by the mouth and expect a prompt and reliable action. Chloroform, naphtol, saccharine, and most metallic salts seriously interfere with the digestive process, and sometimes are sufficient to practically prevent it; they should be given, therefore, some time after, rather than just before meals. Oil should not be administered before meals, for it coats the mucosa and prevents secretion. As a class, women drink very little water, largely a matter of habit and to save inconvenience. Algeron recommends water containing chloride of sodium in atony of the stomach and large intestine, and the alkoline saline waters in chronic gastritis and in hepatic disease. All forms of mineral waters are contraindicated in dilation of the stomach. Vomiting sometimes occurs as a cyclic affection where the vomiting is only one feature in an interesting syndrome. The affection usually occurs in delicate children, and the attacks appear at intervals of from two or three months and last for a few days, after which the child is in usual health. The attacks are preceded by a prodromal period in which lassitude, a coated tongue, offensive breath, rings about the eyes, and gastric discomfort are the chief symptoms. The attacks come on abruptly, with severe and uncontrollable vomiting, made worse by taking food or drink. In the cases that I have seen there was an elevation of temperature, and the gastric contents showed a temporary excess of free hydrochloric acid. The attack is followed with great prostration, but the convalescence is rapid. Some observers state that the paroxysms recur regardless of dietetic indiscretion or psychical disturbance. I have found that over fatigue is apt to precipitate an attack in those predisposed to the affection. I have known alkaline sedatives, like the milk of magnesia, to afford some relief, but usually nothing does much good until the storm exhausts itself.

In nervous vomiting, methol in 1 grain doses, with sodium bicarbonate, is recommended by Meis. Mitchell recommends for this condition the application of compresses wrung out of ice water and changed every minute for a quarter of an hour.

It is now possible to explain the slow passage of fats from the stomach, for they are unlike either proteids or carbohydrates in that they are seldom eaten as a pure, or even predominant, foodstuff. When fats in almost pure form are fed to animals the gastric peristalsis is often observed to be slight, and, according to Pawlow, the flow of gastric juice is not sustained. When fats enter the duodenum, however, they cause the same reflex that acid causes. Thus, by a diminution of the influence opening the pylorus, and by a continuance of the influence closing it, the fats are long retained in the stomach, and only slowly passed along. According to Cannon, the degree of contraction of the pyloric sphincter when at rest varies, but the effect of particles of food in keeping the sphincter contracted indicates that the mere mechanical presence of food in the stomach will produce a closure of the pylorus; after food has reached the stomach all evidence points to the probability that the signal for a movement onward into the intestine is the appearance of free acid. Free acid on the stomach side of the pylorus would thus be the stimulus to open the pylorus and initiate the chemical control of the sphincter. The opening of the pylorus permits the exit of a portion of the acid chyme. There is proof that acid in the duodenum closes the pylorus and keeps it closed. Thus the acid chyme would go forth from the stomach, and, with its acid, close the gate behind it; acid in the duodenum is known to be the stimulus for the flow of the alkaline secretions of the pancreas. No inorganic acid is normally present beyond the first few inches of the small intestine. The acid is here neutralized; as this neutralizing of the acid proceeds the stimulus to the closure of the pylorus is weakened, until the acid in the stomach can again open the pylorus. Again the food would pass out and the gate close till the duodenal changes finish their slower course. In this way, automatically, carbohydrates, on which the stomach works no change, would go early and quickly into the intestine, where they meet their proper ferment; thus, automatically, proteids would be retained in the stomach to suffer alteration by the gastric juice, and only after such alteration be permitted to go on.

Hoffmann has reported the metabolism in Schlatter's well-known case of total resection of the stomach as follows: Six and a half months after the operation the patient had gained 5.4 kilog. in weight; the amount of nitrogen present in the stools varied within normal limits, but during the six days a complete nitrogenous balance was not obtained as in health. There was a retention of from 0.1 grm. to 1.4 grms. of nitrogen; this retention is known to occur in convalescence from acute illnesses, etc. There was no increase in weight during

the first period of observation. A month and a half later a further investigation was made with a more varied diet, and here the absence of the stomach seemed of no importance. A nitrogenous balance could now be established, showing that the regeneration of the blood was so far complete that there was no longer any need of retention of nitrogen. The retention of phosphorus was also marked. Hoffman found that fatty matters were satisfactorily dealt with, so that of 8.5 gms. taken only 4.5 gms. were excreted, showing how incorrect it is to treat patients suffering from chronic stomach disorders with as little food as possible. The question of the action of hydrochloric acid was studied upon putrefactive processes, and he concludes that the absence of the acid in this case was without influence upon these putrefactive processes in the alimentary canal. The administration of hydrochloric acid as a disinfectant of the intestinal contents being useless.

All chlorotic and anæmic patients do not bear iron equally well, and the metal may give rise to so much gastric disturbance as to render its use impossible. In cases in which the gastric contents are already too acid during digestion iron accentuates the hyperacidity of the gastric juice, aggravates the dyspeptic symptoms which are usually present in anæmia and chlorosis. In these cases the digestive affections must be set right before iron is administered. In cases, however, in which the secretion of HCl is normal or administered, iron may often do good service in stimulating the gastric mucous membrane to secretion. All experiments tend to show the necessity of ascertaining the condition of the stomach prescribing iron. Colombo, experimenting on dogs with gastric and biliary fistulæ, has estimated the effect of massage on the amount and quality of the gastric juice, bile, and renal secretion. The gastric juice which came through the fistula in the space of two hours was more than double that which flowed without massage. Massage for five minutes made no difference, but when continued for fifteen minutes the secretion reached its maximum; if continued longer the amount remained about same, but the quality was poorer. As regards the bile, the best results are obtained by ten minutes' percussion, followed by ten minutes' friction and kneading. Ten minutes abdominal massage also increased the amount of urine; slight traces of albumin were observed in the first few minutes after massage, but this was only transitory. In each case the watery part of the secretion was increased out of proportion to the specific elements. The observed increase being due to a greater flow of blood and better filtration. The albuminuria, which manifests itself in the course of dyspepsia, presents peculiar characteristics, which permit its diagnosis not only from Bright's disease but also from other functional albuminurias. The patient in whom this variety of albuminuria is encountered are affected with gastric hyperæsthesia, variable distension of the stomach, increase in the volume of the liver, constipation, and fætal accumulation in the bowel, complaining of a sensation of weakness and fatigue; they are thin and have vertigo, but never present œdema. Their urine shows an irregular albuminuria and sometimes a continuous and permanent albuminuria. This undergoes considerable variation, according to the diet of the patient. The albumin is composed of serum without globulin. The urine never contains tubular cases, but a certain quantity of indican and crystals of oxlate of calcium are found. The state of nutrition and the organic and respiratory changes will furnish other signs, which will aid in differentiating dyspeptic albuminuria from other varieties. Alimentary albuminuria can be cured when it is properly treated in the beginning, that is, when it exists only in an intermittent form, but when it becomes continuous, it is cured only in from 30 to 35 per cent. of cases. The treatment is extremely simple and ought to be based, during the first stage at least, on the state of the digestive tract. The diet forms the prime element of treatment and varies with each case; if there is less albumin with animal diet than with vegetable, animal diet should be prescribed, and vice versa. The diet should be mixed if it is found that there is less albumin under such conditions. It is almost useless to call attention to the fact that it is nearly always necessary to have recourse to a milk diet. This should be suspended if the patient begins to grow thin. In hyperacidity, Roux arrives at the following conclusions with respect to those several forms of dyspepsia which are classed under the term of Reichmann's disease: (1) It is better to call this disease the "syndrome" of Reichmann, than Reichmann's disease; (2) It is an exaggeration to look upon this "syndrome" as being in all cases a clinical sign of motor insufficiency of the stomach, due almost entirely to an incomplete organic stenosis of the pylorus or duodenum; (3) In most cases the secretory activity of the gastric mucous membrane is increased; even before hypersecretion occurs, excess of hydrochloric acid can be detected; (4) A positive diagnosis of the "syndrome" can only be made when the stomach contents contain a large excess of hydrochloric acid after a test meal taken on an empty stomach, in addition to the presence of active gastric juice in the stomach before breakfast; (5) Intermediate forms between simple hyperacidity and hyperacidity combined with hypersecretion can be demonstrated; (6) There is no doubt, however, that stasis of the stomach contents plays an important rôle in the development of the symptoms, but that it is not alone sufficient to cause the "syndrome," although removal of the contents through the stomach tube affords relief.

Litten's phenomenon is described by Le Fevre in his excellent book on Physical Diagnosis. If a patient not too fat is so placed that lying on his back the light falls upon the chest from the direction of the feet only, the observer, standing at the side, sees a narrow shadow moving downward when a full, deep breath is taken. This shadow is due to expansion of lower ribs, caused by the slow separation (by the descent of the diaphragm) of the two surfaces of the pleura over the so-called complemental spaces, and the gradual extension of the lower borders of the lungs, with filling out of the intercostal spaces. This phenomenon is modified or absent in all conditions that (a) change the normal relation of the two surfaces of the pleura in the complemental space, such as effusion in the pleural cavity; (b) interfere with the descent of the diaphragm, as adhesions of the two pleural surfaces; or (c) prevent the lung from distending, as in pneumonia at the base, pulmonary emphysema, fibroid induration and tubercular infiltration, especially at the apex. One may often by means of this sign diagnose slight pleuritic effusions from hepatic and splenic enlargements, as subdiaphragmatic conditions do not interfere with the descent of that muscle, unless attended with pain or greatly increased infra-abdominal pressure.

PHYSIOLOGIC RHYTHM.

BY F. B. BRUBAKER, M.D., MIFFLINGBURG, PA.

THE physician who has well attended to a study of the collateral sciences of medicine must surely be cognizant of the fact but briefly alluded to in the preceding essay that all physical phenomena eventually resolve themselves into force. We need not pause to prove how or why this is so, for it must be self-evident that he who would become acquainted with the whole of medicine, must first become acquainted with the whole of force.

Health therefore we would describe as the rhythmic flow of physical force, and disease a broken or impaired flow, taking for granted the reader's entire familiarity with the persistence of force and motion.

Should we assume in the present instance that ultimately all physical phenomena resolves itself into heat, and that the measure of life therefore is the measure of heat terrestrially expressed, and that heat being energy is likewise motion, and that all well-ordered motion is rhythmic to which interpretation we now apply ourselves, we fear we might too far anticipate our own argument, and yet who dare deny that organic growth does not take place in the direction of least resistance? this being first manifestly so in the inorganic world, a manifest duality which pervades not only physical phenomena but the whole of inanimate things as well, which, expressed in appropriate terms becomes the well-known law of attraction and repulsion, whose ultimate again is motion, therefore from universally co-existent forces of attraction and repulsion, there result certain laws of direction of all movement. Where attractive forces alone are concerned, or rather are alone appreciable, movement takes place along the resultant, which is usually known as the line of greatest attraction. Where repulsive forces alone are concerned, or rather are alone appreciable, movement takes place along their resultant, which is usually known as the line of least resistance. And where both attractive and repulsive forces are concerned, or are appreciable, movement takes place along the resultant of all tractions and resistances. Motion and all physical phenomena, no matter where found, eventually resolve into atoms and molecules, and is relative to all other phenomena. It always follows the line of greatest traction, or the line of least resistance, or the resultant of the two, the resultant of the two being alone absolute, inasmuch as it is the clashing of forces that produces rhythm, and not the uninterrupted flow. Movement, therefore, set up in any direction in itself, becomes a cause of further movement in the same direction, *since it is the embodiment of a surplus force in that direction.* It further follows that the direction of movement can rarely if ever be perfectly straight. For matter in motion to pursue continuously the exact line in which it sets out, the forces of attraction and repulsion must be symmetrically disposed around its path and the chances against this are infinitely great. Having learned, therefore, that in proportion as the forces at work are numerous and varied, so the curve a moving body describes is complex, and remembering that nowhere as in the onflow of physical phenomena are these forces so numerically complex, it therefore results as a necessary correlary that every motion takes place along the line of greatest traction, or that of least resistance, or the resultant of these two. We have learned that the setting up of motion along a certain line, becomes a cause of its continuance along that line, and that change of relations to that line by external forces, renders it indirect, and that the degree of this indirectness, increases with every addition to the number of influences at work. When, therefore, but one force which otherwise might for a moment occur along a straight line, intersects with another, a slight curve is produced, and as all things both within and without, are held together, by reason of these very laws, we can at once comprehend the complexity of the subject, and likewise its beautiful consequent, viz.: Rhythm. What, then, is rhythm? Physically, the co-efficient or resultant movement of acceleration and inhibition is life from the material standpoint. In the vegetable kingdom the formation of the root furnishes a beautiful illustration of the law of least resistance, for it grows by insinuating itself cell by cell through the interstices of the soil, and by such minute additions increases, winding and twisting wherever the obstacles it meets in its path determine, and growing most, where nutritive materials are supplied. Appearing as they do in all their strength and adaptation under ground, we are sometimes led to view them as forcefully placed, but that this is not so, is only too apparent inasmuch as they were as gently led on and cell added to cell as noiselessly as the falling of the dew.

A bubble rising rapidly in water describes a spiral, closely resembling a cork-screw, and a body of moderate specific gravity dropped into water, may be seen to fall in a curved direction the spiral tendency of which may be distinctly observed. A general law therefore is reducible, that throughout all of organic nature, the spiral form is more or less distinctly marked.

This being so, because all motion under resistance takes a spiral direction. The universal spiral arrangement of the leaves around the stems of plants sufficing for an apt illustration. If a flower bud be opened at an early period, the stamens will be found as if moulded in the cavity between the pistil and the corolla which cavity the antlers exactly fill, the stalks lengthening subsequently.

The heart commences as a spiral turn, and in its perfect form a manifest spiral may be traced through the left ventricle, right ventricle, right auricle, left auricle and appendix. The spiral turn in which the heart commences being but a coincident result of the lengthening under a limit of the cellular mass of which it then consists. Seeing, therefore, that developmently all organic forces tend to the spiral or circular, because of being acted on by contrary or otherwise opposing forces, it is not at all surprising to note that all resulting phenomena is rhythmic, neither indeed that vascularity (the whole of tangible and visible phenomena) is perseveringly so, the tractive or gravitating force of the earth itself serving to establish to all other physical force manifest, the right angle, the same of course being opposite, currents along which either blood, bile, lymph, chyle or what-not, find their way, being lines of least resistance, so that in this way has the formative become the formed, and the resistent the unformed. The natural, normal, and interrupted, being the ebb and flow of rhythm, while the unnatural, interrupted, and diseased, still strives to preserve the same in all varicosity. Vascularity therefore resolving itself into force or motion, is the natural or normal termination of all healthful activity whose interruption even to the molecule, is a

first step towards disease.

Perfect equilibrium of the manifold forces comprising vascularity which in the ultimate is nutritional, is therefore, after all, the measure of a man's days, be they threescore or ten. Disturb the equilibrium even to a molecule, and you awaken some compensatory force, even to the extent of a molecule, through which restoration takes place, if indeed the balance is to be maintained, or on the other hand, if lost, establishes a train of disturbance whose total is death. Restoration of equilibrium between the points at which the forces have either increased, or decreased, disproportionally, must take place through some channel if the debt is paid, or, if not, becomes in all organic effect, *cumulative.*

If action of the tissues traversed involves any reaction upon them, deduced from the obstructive power, then a subsequent motion between these two points, will meet with less resistance along this channel, than the previous motion met with, and will consequently take this channel still more decidedly, which by every repetition will still further diminish the resistance offered by this route. Hence will eventually be established a line of comunication differing greatly from the surrounding tissue, and which constitutes the abnormal, the vicarious, the disease producing and death dealing. Hence therefore our formula resolves itself into a very simple proposition, although intrinsically delicate and intricate, forcing itself upon our attention all too early, by headaches, inflammations, œdemas, etc.

Let us come a step nearer our subject. Vascular excitement with dilatation and turgescence (plethora), characterize the functional activity and enlargement of the spleen. Its capsule expands. Contraction of the elastic capsule and muscular fibre in it, characterize the reduction of the spleen. Now this to my mind is the whole of physical phenomena, remembering it to be normal and but one-half expressed, viz.: the protoplasmic. Resulting therefrom by the opposition or clashing of forces we derive its rythm, made up of course by its active enlargement and its passive reduction. In the maximum stage of the rhythm, the spleen performs its functions, and in the minimum stage of the rhythm, the spleen gets its rest, and self repair. Another feature being, the tortuosity of its artery, which adds to the power of functional activity and prevents sudden motion or enlargement. Indeed every organ in the body presents like phenomena, the process of vascularity being manifestly so, and therefore easiest of understanding, the systole and diastole of which has been much studied.

Expansion and contraction therefore wherever found result in rhythm.

The rhythm of the bladder then is its contraction and dilatation, for it possesses a systole and diastole, as truly as the heart, its rhythm to a certain extent being lost sight of, because the diastole is so much longer than the systole, requiring hours for its diastole to complete itself, while the systole may be completed in a few minutes or less. And yet, remembering that even in so apparently a rhythmic an organ as the heart the diastole of the ventricle is two-fifths of a second longer than the systole, we find that physiologic rhythm is not alone a measure of time.

The rhythm of the liver consists of its enlargement during functional activity and its return to normal during rest. The rhythm being made possible by the elasticity of the peritoneum which surrounds it, by its surrounding elastic capsule, by the elastic tissue of Glissons capsule which surrounds the vessels all through the liver, and by the dilatability of the blood vessels. Hence the liver gland is capable of enlargement and contraction. Passing through its active rhythm by vascular excitement, it attracts large quantities of fluid from which it makes bile, glycogen and urea, to return again to its normal by its elastic capsule, forcing the newly formed products out through the tubules, to be employed in digestion.

This same reasoning applies likewise to the pancreas and kidney, to ovary and testicle, for to them also does the law of vascular engorgement and elastic capsule or other subserving mechanism apply, to induce and sustain rhythm.

One of the most beautiful examples of continuous physiologic rhythm is to be found in the nutritional tract itself, for, beginning with the œsophagus and ending with the large bowel, a sustained and retained rhythmic action is apparent.

But why should we multiply instances? If the reader has now firmly fixed in his mind the fact that a study of physiologic rhythm, is absolutely necessary to a proper understanding of the higher problems of science, to which none better or with more right belongs the study of medicine, I shall have succeeded in my endeavor as I had hoped. Vascularity therefore, whether considered mediately or immediately, is composed of two factors, a duality, the one contractive and the other dilative, these two being nutritional, which being composed of forces antagonistic, resolve themselves into rhythm.

President Roosevelt's Action Against Tuberculosis is recorded in the lay press; and this certainly makes pleasant reading for the physician. An order has been issued to all departments of the government service in Washington to the end that this disease may be prevented and eliminated among employees. Rules prepared by a committee appointed by Executive order are to be printed and transmitted to all the Federal buildings, in which they must be conspicuously displayed. Each department must ascertain the names of its employees afflicted with tuberculosis and to present to them these printed rules, the non-observance of which shall be considered a just cause for dismissal. Any employee concerning whom a diagnosis of consumption is doubtful must visit one of the government laboratories for examination and must present to the department from its director or other authorized officer a certificate showing the result of the examination. If such a laboratory is not accessible the examination is to be made at government expense. The surgeons general of the army, the navy and of the public health and marine hospital service, are to cause a thorough sanitary inspection (the latter also of all departments not military or naval) of the public buildings and workshops under their respective departments and may detail one or more sanitary boards for this purpose, who shall report upon unsanitary conditions immediately remedial and such as require structural changes. These boards are to receive every assistance from the executive heads of all buildings or workshops which they visit; and these boards must make reports to the Surgeon General of their respective services, who shall submit them to the committee we have mentioned. And this committee are to transmit in turn a full report with recommendations to the Executive.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, JUNE, 1906

No truth so sublime but it may be trivial to-morrow in the light of new thought.—*Emerson.*

RUTHLESS NOISES.

THERE are those who question whether civilization is, after all, worth while; whether that part of humankind which lives close to nature is not on the whole better off. Such a view is extreme and easy of refutation; nevertheless we certainly have oftentimes to pay a dreadful price for the development we have attained to, especially those of us who live in cities. So really terrible is the strain of modern urban life, that it has been computed such communities as Paris, London, New York and Chicago would become extinct within a few generations were it not for the influx of fresh minds and bodies from rural sources. Among baneful factors we note here the din of great cities. Many such noises are inevitable and must be endured. But many others arise purely and simply from such lack of consideration as would shame the primitive brute. We note here in this relation some recent instances which have become a part of metropolitan history.

Excavations had been making in a hotel and residence district in order that a huge store, to cover the most of a city block, might be built. Day and night, throughout the twenty-four hours, there was the rumbling of wagons filled with stone and dirt, the shouts and profanities of men, the drilling of a hundred steam drills and frequent blasting. Such was the insane eagerness to get the place ready for business that absolutely no humane consideration had weight. How often is "business is business" the only answer made to such protestations, as if there were nothing else in life worth while. Several citizens combined finally to have the excavating contractors haled to court. Some of the testimony related in the lay press follows: One witness was compelled to leave his home and go to a sanitarium in order to recover the sleep he had lost through many nights. "Now, as a matter of fact," asks the lawyer of the defendants, after having asked a number of irrelevant questions, "haven't you an irritable disposition?" Another witness had to leave the stand, being weak and about to faint. The defendant's lawyer declared the trouble was not with the noises, but with those who made the complaint, who were naturally affected with weak nerves. He was of the opinion that such a trifle as blasting during the night should not disturb the slumbers of a normally constituted individual. Besides, what were the complainants going to do about it, anyway? There was no statute covering the offenses alleged. We find in this state of things no civilization at all; not even common decency.

A huge place of amusement was recently building. One would think that such a structure need not be unduly hastened, that it could be erected during normal working hours. Nevertheless there was constant blasting at night, with all the concomitant noises. A dozen steam drills and four steam cranes were constantly at work. Indeed, there was no cessation at the end of the sixth day; the work of building was continued throughout the day and the night of the seventh day as well. Not only was the pious Sabbatarian outraged here, but also every citizen capable of wholesome sober sentiments.

But it is the very sick in hospitals whom ruthless noises have reduced to a pitiful condition, whose lives have in some instances certainly been sacrificed by means of them. "Picture to yourself," writes Dr. M. S. Gregory, of Bellevue, which lies upon the East River shore, "a patient in the agony of death, who is suddenly startled by the shrill noises of prolonged whistles! Then, again, many patients suffering from typhoid, meningitis and other serious illness will become annoyed by the least noise or disturbance. To these restful sleep is of paramount importance and frequently such disturbances may cause a relapse or turn the scale against them. In many delirious patients an hour's rest or sleep may mean life." The work of the physicians and nurses in the psychopathic pavilions is made most trying and difficult by the whistling from boats. Many of the insane become frenzied by these noises; many imagine the incessant whistling is meant for them, and that it means their death-knell. One such sufferer will make chaos in a whole ward.

On some occasions the shrieking of tug and steamboat whistles is incessant; in one night 2,500 such noises were counted. Little tugs oftentimes carry enormous and altogether disproportionate whistles. Captains call by this means their crews which have been ashore for entertainment. There are many "sirens" which are, in addition to their diabolical

screeching, an actual menace to navigation, because they render inaudible the signals from other boats. It has been estimated that eighty per cent. of these river and harbor noises are occasionless and are the result of sheer rowdyism.

The condition of things which obtains in New York City has become, it seems, a matter of almost national moment. In Pennsylvania towns there is protest against the clanging of foundries and the noises in mills and factories. In Seattle on the western coast there is a vigorous movement on foot to secure decent municipal quiet. In many cities there is protest against the unduly loud trolley-car gongs, the slamming of their doors, and the racket and groaning of their badly oiled machinery. In Massachusetts something has recently been accomplished by the force of public opinion, which is in accord with the idea that a community, in proportion as it becomes civilized, will suppress nuisances in the form of unnecessary noises—that violent noises are gravely detrimental to the health, not only of invalids, but of the strong and robust as well. The courts of that state have decided objectionable noises are actionable, and it is to be assumed that under the common law that principle can and will be generally upheld in other commonwealths and communities.

THE EFFECT OF TOBACCO SMOKE ON THE HUMAN ORGANISM.

MANY pleasant papers have been written on the use of tobacco and many unpleasant tracts have been thrown at the user of the "slow burning weed" which Sir Walter Raleigh rescued for humanity's weal or woe. Undoubtedly no greater human solace is known to those who love the weed and nothing seems more ridiculous to the tobacco hater. Leonidas Hubbard, in his terrible experiences in Laborador, which resulted in his death under most tragic circumstances, deplored the fact that he did not love tobacco, for it seemed such a tranquilizer to his two suffering frozen companions.

The scientists have not left tobacco alone and we now know what a complex poison we are introducing to our inner man. Thus Wyatt Wingrave tells us of the horrors of tobacco nerve deafness. He finds that (1) That there was an impairment of color sense in eight of (unattributable to other causes) occurring in heavy smokers. (2) That the loss of low tones in 50 per cent. suggests an auditory equivalent for a recognizable ocular lesion. (3) That the disease was symmetrical. (4) That there was an impairment of color sense in eight of them, and definite scotoma in four cases. (5) That 80 per cent. showed marked improvement on abstinence from tobacco supplemented by drug treatment; three were cured.

Yet deluded man continues to use the weed; nay, he may even smoke while he reads this lugubrious report of Dr. Wingrave.

We know that besides nicotine, tobacco contains nicoteanine, collidine and other pyridin derivatives, acids, carbon monoxide, resins, ammoniacal salts, and —listen, ye ladies of the Women's Christian Temperance Union!—prussic acid, one of the deadliest of all quick-acting poisons. Two drops of nicotine will kill a dog in less than a minute, placed on its tongue, while eight drops will kill a horse, and tobacco contains two to eight per cent. of nicotine. "True," cries the tobacco smoker, "but this is changed by smoking into other bodies." Le Bon, who is as good an authority as his name implies, has proved that these other pyridin bodies are as poisonous as nicotine itself, but Petit who is, we hope, a greater authority than his name suggests, throws out the belief that these bodies do not condense in the warm mouth and are mostly exhaled; therefore the physiological effect of ordinary smoking is not marked. He believes susceptible people are more affected by breathing the air of a room full of tobacco smoke than the smokers themselves, which is poetic justice, highly developed.

The *London Lancet* believes that the gaseous products of the incomplete combusition of tobacco are so complex that the question arises as to which constituent is due the toxic effect. This seems to be unknown. The *Lancet* quotes some investigators who to their undying fame deny that any nicotine is found in tobacco smoke at all. Unfortunately, the aromatic compounds are believed by these authorities to be more toxic than the oils, bases, gases and anines.

Carbon monoxid has been found in the gases of tobacco smoke; let us hope only in cigarette smoke. Where stupor, trembling of limbs and hands, dizziness and nausea occur following the use of tobacco, it may be due to the susceptiblity of the organism to this gas. But as it is generally very scarce in tobacco smoke and as its effects are similar to nicotine, it is a hard problem to settle definitely.

The devotion of cigarette smokers to their weed seems far greater than that of other tobacco devotees. In fact, so far has this been noticed, that cigarette makers have been accused of putting opium in their wares. A prominent official active for years in catching criminals stated to the writer the other day that in his experience practically all habitual criminals and degenerates were excessive cigarette smokers. Whether they smoked to excess because they were criminals or whether they became criminals because they smoked to excess is a problem, but this official believed that the smoking had a very definite influence for bad.

Despite this fact, men and now even the ladies are smoking daily. When done in moderation, especially in older people, it is hard to say what damage is accomplished. Fifty years from now it will still be a pleasant problem for the writers of the day to attack with no more promise of settling the question or influencing its spread than we have now.

ARE THE INSANE CRUELLY TREATED?

FROM time to time this question arises with regard to attendants in insane asylums; and those who make such accusations back them up with what they hold to be competent and conclusive testimony. There is now an investigation of this sort by a committee appointed by the Speaker of the House of Representatives concerning the conduct of the Government Hospital for the Insane. It is alleged that flogging, kicking, cuffing and throttling are among the very least of the outrages disgracing this institution. Patients, it is declared, have been committed without due notice or previous examination. They have, it is alleged, frequently been choked to insensibility; their ribs have been broken; they have been tortured with caustics; they "have been stimulated to violence by means of drugs and then beaten to submission." The attendants, indeed, have been characterized as monsters of cruelty, as devils, rather than human beings.

It is manifestly important that such charges as these should be sifted to their logical conclusion—for the sake of the attendants, at least, as much as for that of their alleged victims. This will, no doubt, be done, gravely, as befits the seriousness of the accusations. We would here but submit some elementary observations, coupled with a few facts of a medical nature.

Those who charge these dreadful things appear to us to be trying to prove too much, which course is always a mistake and a weakening of one's case, as any lawyer will attest. The question will at once arise, which Cato of old asked concerning the extent to which the defendant could profit by the machinations of which he was accused—*cui bono,* what profit would it be to the attendants to commit such atrocities? True, we may believe without proof that attendants, being but human, are from time to time negligent of their patients, or even stringent with them; it is absolutely necessary in many cases that force be used.

The *Sun* wisely cautions its readers concerning the value of some of the testimony set before this committee; we would go further and declare that no testimony given by an insane patient should be accepted, unless corroborated by those who are not patients. Why, for instance, should an attendant give "men medicines which make them violent and passionate" when such a course would certainly increase his own responsibilities and anxieties? Again, a woman testifies that her husband has had a black eye seven times, "although he is bedridden." Let us assume that her testimony was true. Her husband, however, was a paretic, and it is quite conceivable that his injuries were self-inflicted. Broken ribs and minor injuries were testified to; but physicians know that the skeleton in general paralysis of the insane is very apt to degenerate and the bones to become brittle and to fracture from very little traumatism indeed. Anæsthesia is, moreover, marked in this disease, so that hurts received in unusual ways, and not at the hands of attendants, will oftentimes remain unfelt by the patient until they are accidentally revealed.

It is not easy to control maniacal patients. We observe with all decorum that an insane asylum is not a polite salon, nor does a psychiatric clinic resemble in any way a pink tea. It is very well to talk about treating the insane tenderly, but when a maniac, as sometimes happens, can handle a couple of attendants after the manner of Indian clubs it requires a certain force to subdue him—mere tact will not suffice—and besides, he is very apt to hurt himself as well as others. It requires extraordinary patience to deal with the insanse. We commend as very just and fair this opinion of the *Sun,* as also its advice that, "in consideration of its character, the alarming testimony published in the papers should be received with a certain caution and without an inclination to draw hasty conclusions."

SHOCK AS A CURATIVE AGENT.

TUKE has written an invaluable book on "The Influence of the Mind Upon the Body." It is not "up to date;" nevertheless it is full of scientific data, apt illustrations, pregnant observations and wise deductions. He relates a case: The sufferer was "seized with all the symptoms of a violent attack of rheumatic fever." His dread of a two or three months' sojourn in a Manchester hotel bed was so great that he started for London, well wrapped up, on theMidland fast train. From the time of leaving his heart was going at express speed, there was a profuse sweat, the pain was acute. Suddenly there was a dreadful collision. "From side to side of the carriage I went like a billiard ball under a hard cushion hit. The compartment was soon seen to be sprinkled with the blood of a hapless victim whose face had come into crushing contact with it." This railway collision instantly cured the patient of his rheumatism. It is related that General Grant suffered severely from rheumatism at Appamattox. Never-

theless when a flag of truce brought him the news that Lee was ready to surrender his joy was so great that his rheumatism was instantly dissipated. A colleague had a bedridden patient whom he was convinced could leave her bed and was much better about. He went one day to her bedside and sternly told her: "Mrs. X, you are to leave your bed at once and come to me in the other room." This she did and presently came before him. Afterward when asked how she could get up when she seemed so ill, she said it was because the doctor looked and spoke in such a way that she felt he would thrash her if she did not obey. Had a Christian Scientist done this a miracle would have been proclaimed. *Verbum sapiendi sufficiat.*

The dreadful earthquake and fire at San Francisco has produced a number of cases similar to these. A paralytic who had been crippled for fifteen years is now entirely cured. There was a young girl whose vocal cords would not work after the earthquake, but who recovered her voice when overcome by emotion at the sight of her mother. In other lands similar seismic commotions have produced like effects. During the Russo-Japanese war a party of foreigners gave a dinner in a Japanese city. There was inebriety at this feast; so that some of the diners had on what is vulgarly termed a "skate." The dinner was ended by an earthquake, the effect of which was to reduce every person present from the gaiety produced by good wines to his normal soberness. It is astutely observed in this connection that the experiment of confining dipsomaniacs in territories subject to shocks might be worth trying.

There is no mystery about such cures as these. Such conditions as are structural, as a mammary cancer or a pulmonary cavity are not to be cured upon the instant by these means. But functional and imaginary disorders are amenable to healthful stimuli by way of the emotions.

RODENTS AND DISEASE.

NO ONE of normal tendencies ever was fond of rats and mice. Our repugnance, especially that of our women folk, to these creatures has seemed somewhat absurd. However, there is scientific evidence that this repugnance is well-founded; that it probably has its origin in an instinct of self-protection against disease-engendering factors.

Rats certainly do transmit trichinosis by way of the pork which we eat—to what extent it is hard to judge. Many accusations against the meat trust in Chicago may be unjust. However, there is no doubt at all that in the stock yards hogs have been seen to catch and eat rats; and that, on the other hand, rats have and do devour tainted, diseased flesh of the hog. We turn from this ghastly matter to the transmission by rats of the plague, typhoid and typhus; they bring forth and disseminate from their sunless and foul hiding-places the germs of these fatal diseases. And no doubt many a sufferer has contracted his disease in this manner. Concerning such transmission of plague there is now no manner of question; this scientific fact is established beyond peradventure. In addition we learn that Remlinger, of the Pasteur Institute at Constantinople, has found rats and mice to be extremely susceptible to the poison of hydrophobia; undoubtedly these rodents are responsible for many cases of rabies in dogs. Remlinger believes, indeed, that canine rabies would have worn itself out and would have become far less severe were its virulence not constantly reinforced by the bites of rats and mice.

CLEMENCEAU—PHYSICIAN AND STATESMAN.

THE scope of the medical profession is as wide as humanity. The physician cannot but be interested in every phase of human life. To this end his education, his scientific attainments and the humane instincts which have inspired his career inevitably lead him. It is, therefore, no occasion for surprise that medical men are from time to time active in fields other than that of the healing art; the wonder is, indeed, that physicians are so seldom seen in any other work than that of medicine. Dr. Georges Clemenceau has made for himself a most distinguished position as a French statesman, and the manner in which he has met and put down the recent socialistic labor demonstration in France has won for him the gratitude of that nation. His career is particularly of interest to us by reason of his having at one time practiced medicine in this community. It is likely that, had the Franco-Prussian war never occurred or been postponed a year or two, he might have become a great American legislator, or, at any rate, an illustrious American physician.

Now in his sixty-sixth year, Dr. Clemenceau comes of an old Vendean Huguenot family. He writes brilliantly and with an originality and perspicacity which is the delight of those who appreciate good literature. He studied medicine with distinction at the Nantes and Paris hospitals, and was interne in each. At the age of twenty-two he wrote a work, which is still valuable, on "Anatomic Conceptions and General Physiology." In the later sixties he was a formidable opponent to the empire of Louis Napoleon, the penalty for this was that he was "invited to leave the country." In 1868 he reached New York, his only possession being a very fine collection of surgical instruments. He became at once a practicing physician, and he laid the foundations of a substantial practice in the French colony, south of Washington Square. He also regis-

tered his intention to become an American citizen. The Franco-Prussian war and the empire's fall determined him to return to France. Lacking the money to this end, he would have borrowed some on his surgical instruments had not a friend—himself a great physician—freely offered the money without security. He made his début in the Chambers in 1876, since which time he has been a masterful and wholesome force in French politics. In the intervals between law-making, states the *New York Times*, "he has written much—short stories, sketches of travel, essays, novels. Among the last may be mentioned 'Les Plus Forts,' a study of present-day manners, aims and conditions of life, which only a man with the most varied culture and with a broad knowledge of and a sympathy for the world could have written." This great man is surely a precious possession, which our profession may claim.

EVOLUTION THE MASTER KEY.

IT was Herbert Spencer who made the theory of evolution advanced by Darwin the basis of a synthetic philosophy, by which he sought to explain and to correlate universal facts and conditions. Spencer's work, in several weighty tomes, has proved rather too formidable for most readers. And, since the publication of his First Principles and its accompanying valumes, several authors have essayed to condense and simplify his writings. John Fiske did this most admirably; and, like the genius that he was, he infused into his Outlines of Cosmic Philosophy, a two-volume work, a large measure of his own original thought. Another valuable condensation is Professor Hudson's "Philosophy of Herbert Spencer." We here review the excellent and most readable single volume by Dr. Caleb W. Saleeby entitled as above.*

Dr. Saleeby's work is certainly most succinct, clear, concise and comprehensible; extraordinarily so, considering the range of subjects with which he deals—subjects with which the physician should be familiar. The origin of life, heredity, the evolution of mind, the test of truth, the evolution of medicine, radium and the atom—these are titles taken at random from the table of contents.

The dictum that "nothing is constant but change," Saleeby declares, does not apply to the reality which is the quest of all philosophy and the truth which expresses it; "these alone are immutable." Otherwise, however, all things change. The philosophy of evolution teaches that all phenomena change in accordance with certain laws, and it attempts to give these laws expression. Evolution, or change, is universal; stars and souls, atoms and oak-trees, states and religions are alike subject to it. With the exception of the law of the conservation of energy, upon which Spencer built it, "this statement of absolutely universal evolution is surely the greatest of all generalizations." Dr. Saleeby makes an important distinction—he would not confound the term change, or evolution, with development. "Evolution, as we know it, though it may appear in our own time to be working toward 'some far-off divine event,' yet appears to have such only as a proximate and temporary goal. The great rhythm of the universe may show such a crest; but, as far as we can see, the wave must travel on, and the upward movement be followed by a downward in this endless cycle which the synthetic philosophy, like so many of its ancient Oriental predecessors, reveals to us." Here is a hard saying for many of us, our natures striving always as they do toward better things and loftier ideals. Still, if the evolutionary philosophy, or any other, be true we must accept it, however unpalatable it may be. Truth is the final criterion, and she must be followed wherever she leads.

Nowadays, indeed, we have come to "think in evolution." Dr. Saleeby finds in it the key to the problems of all phenomena; it is necessary alike to the chemist, the politician and the theologian. For the old static view of things, which regarded them as at rest, evolution substitutes the dynamic view, which regards all phenomena as in motion. "On one central eminence (Dr. Saleeby quotes Sir William Huggins) dominating alike the past, the present and the future, Science has for some years firmly entrenched herself—the position that through all the ages the Cosmos has advanced, and is still advancing, by a process of orderly evolution."

*Harper's.

Postoperative nausea is not so prevalent since the introduction of nitrous oxide gas as a preliminary in anæsthesia; still it occurs frequently enough to be entitled to consideration. L. E. Holmes finds (*Am. Med.*, Dec. 23, '05) that of the predisposing causes sex is most conspicuous, the female sex being the more prone. In nervous patients, the reflex after-effects are likely to be more severe and prolonged. The operations most likely to be followed by nausea and vomiting are those on the uterus and adnexa, especially when dilatation is done. Holmes differs from the general opinion in that he does not find ether to be followed by nausea more frequently and severely than chloroform. The preparation of the patient has much to do with the after-effects, and more important still is the after-treatment. It is a safe rule, though unnecessarily hard in some cases, to keep everything out of the stomach for at least twelve hours. Even a very shall amount of water will set up nausea and vomiting, from which up to that moment the patient has been wholly free. Holmes thinks that the degree of gastric disturbance following an etherization has no relation whatever to the quantity of ether used.

BIBLIOGRAPHICAL

Manual of Diseases of the Ear, Nose and Throat.—By John Johnson Kyle, B.S., M.D., Clinical Professor of Otology, Rhinology and Laryngology in the Medical College of Indiana, etc., with 160 illustrations; 12mo. pp. 595. Price, $3. Philadelphia: P. Blakiston's Son & Co. 1906.

This little volume gives the essential information respecting the diseases of which it treats, in an excellent manner, for the use of the student and the general practitioner. The methods of treatment are confined to those which the author has found personally successful. The text is very concise and clearly stated.

The Dynamics of Living Matter.—By Jacques Loeb, Professor of Physiology in the University of California. New York: The Columbia University Press; the Macmillan Company, Agents. Octavo, pp. 233. Price, $3.

This book owes its origin to a series of eight lectures delivered at Columbia University in 1902. The aim of these lectures was to give a presentation of the author's researches on the dynamics of living matter and the views to which they had led him. In preparing this volume, the author has tried to give a somewhat more complete survey of the field of experimental biology than was possible in the lectures, without, however, trying to alter their character. The author's well-known experiments in fertilizing the eggs of the sea urchin with hypertonic sea water are given here in full, and cannot fail to interest the student of biological science. The lecture on Heredity is full of startling information which should be instructive to members of our profession.

International Clinics.—A quarterly of illustrated clinical lectures and especially prepared original articles by leading members of the medical profession throughout the world. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia. Vol. I., sixteenth series, 1906. Philadelphia and London: J. B. Lippincott Company, 1906. Pp. 309, octavo. Price, $2. Illustrated.

In this thoroughly up-to-date publication we find under "Treatment" there are papers on "Exophthalmic goiter, gastroptosis, coughing and its relation to treatment, dechloridation treatment in diseases of the heart, and indications for and the method of performing venesection." There are also essays on "The diagnosis and treatment of membranous tonsilitis, the position and rise of the heart in advanced mitral stenosis, the origin and preventive treatment of oxalic acid deposits in the urine, and death and blindness as a result of poisoning by methyl or wood alcohol and its various preparations." The causation and treatment of eclampsia with special reference to the methods of accomplishing rapid delivery of the fetus is practically and interestingly set forth. The progress of medicine for the past year is thoroughly digested.

A Compend of Obstetrics, Especially Adapted to the Use of Medical Students and Physicians.—By H. G. Landis, A.M., M.D., late Professor of Obstetrics and Diseases of Women in Starling Medical College. Revised and edited by William H. Wells, M.D., Demonstrator of Clinical Obstetrics in the Jefferson Medical College, Philadelphia, etc. Eighth edition, illustrated. Philadelphia: P. Blakiston's Son & Co., 1906. 12mo., pp. 227.

In the eighth revision of this excellent little book, the editor has brought his subject fully to date. We cannot commend this work too highly. No student should be without it.

Ellis's Demonstrations of Anatomy.—Being a Guide to the Knowledge of the Human Body by Dissection. Twelfth edition. Revised and edited by Christopher Addison, M.D., B.S. (London), F.R.C.S., Lecturer on Anatomy, Charing Cross Hospital, Medical School; formerly Hunterian Professor, Royal College of Surgeons, England; Examiner in Anatomy, Royal College of Surgeons, England, etc. Illustrated by 306 engravings on wood, of which a large number are in colors. Octavo, 861 pp. Price, muslin binding, $3.50, net. New York: William Wood & Company.

In preparing this edition of Ellis's "Demonstrations of Anatomy," the editor has carefully preserved those features for which the book has been so justly valued in the past, and the general style and character has not been interfered with, although the advances in the knowledge of anatomy and in the methods of its teaching have necessitated many changes. The matter has been rearranged and now follows the ordinary course of dissection as taken by students, beginning with the simple anatomy of the upper and lower limbs and ending with the more complex parts of the head and neck and the organs contained therein. The illustrations have been largely increased and many are in colors and are unsurpassed in accuracy and beauty of execution. A special feature has been made of the muscle attachments to the bones. A system of marginal indices facilitates ready reference, and a comprehensive index to the entire volume completes one of the most important additions to anatomical literature of recent years. The publishers, bearing in mind the burden imposed upon beginning medical students in the number and cost of textbooks to be purchased, have generously issued this book at a very low price, believing that the large sales will offset the small margin of profit to them.

Pyloroplasty Versus Gastro-Enterostomy.—We have recently mentioned—and, we confess, with some prejudice—the matters of gastro-enterostomy. In a recent issue of the *Journal of Surgery, Gynecology and Obstetrics,* Finney gives a very favorable report on pyloroplasty, which may be considered a rival operation. Thirty-three cases of non-malignant stenosis of the pylorus were operated upon with three deaths, not due to the operation itself. Whereas Mayo has recently had regurgitation of bile after pyloroplasty, Finney has had no such experience. However, regurgitation of bile is so common through a normal pylorous and the bile is so often retained without causing vomiting that, on the one hand, we may reasonably question the literal truth of Finney's claim and. on the other hand, point out that an occasional vomiting of bile neither reflects on the surgeon nor on the mechanic advantage of pyloroplasty. Finney emphasizes the point that the operation is not contraindicated by dense cicatrical adhesions but that these cases are better treated by pyloroplasty than by gastro-enterostomy.

CORRESPONDENCE

ON THE ETHICS OF PROPRIETARY PREPARATIONS.

To the Editor of THE MEDICAL TIMES:

There has recently been a renewed discussion of the ethics of proprietary mediciments. Such preparations may be divided into the following classes: 1. Out-and-out quack medicines, with which the medical profession has no concern. (2) Mysterious combinations, advertised to the profession, but of whose nature and ingredients no exact information is given. (3) Preparations of various sorts, good, bad and indifferent, advertised to the profession and containing an exact statement, at least of the active ingredients. (4) Preparations of the 2d and 3d classes in which the information is deliberately, or through ignorance, false. (5) Preparations of the last three classes also advertised to the laity.

The first class requires no discussion at present. The second class is to be universally condemned, unless possibly an exception is to be made in favor of serums, etc., still in an experimental stage, placed on the market by men of repute, at the solicitation of the profession and with general statements as to the nature of the preparation. Manufacturers of this class of goods—some of them ranking among our leading wholesale pharmacists—commonly plead that if they advertised the exact composition, they would be subjected to unfair competition by imitators. This plea is, to some degree, correct, but it is absurd to suppose that intelligent physicians will sacrifice their duty of personal supervision of the details of treatment of a case and allow themselves to be made cats' paws by druggists. Moreover, the financial success of preparations of malt and cod liver oil, hypophosphites, etc., and even of compounds of puerile simplicity demonstrates that ordinary business methods can obviate the personal disadvantages to any one manufacturer, of competition by imitators. Nine times out of ten, the proprietary preparation has no originality but is itself an imitation or copy of some standard prescription. The only kind of physicians that use this class of drugs at all are themselves, ipso facto, inferior in ability in prescribing to druggists and it is a wholesome sign of the times that the demand for this class of proprietaries is falling off.

The third class of proprietaries can safely be left to the discretion of the profession. So far as liquid medicines are concerned, there are almost none of this class that cannot be prescribed extemporaneously and dispensed by any competent druggist. Pills, bougies, tablets, etc., as well as foods, are either much more elegantly prepared wholesale or are quite beyond the equipment of any ordinary retail pharmacy.

Unless the circumstances are extraordinary, a manufacturer who deliberately or carelessly or ignorantly, misstates the composition of a product deserves not only the condemnation of that product but of every other that he issues. "Falsus in uno, falsus in omnibus." Some leniency should be extended with regard to foods, animal extracts, germ products, serums, etc., as the chemical knowledge of these subjects is not yet thoroughly satisfactory and errors may occur which are, at present, unavoidable. For example, some years ago, the writer made clinical analyses, confirmed by a competent chemist, showing that certain claims as to the existence of proteid in a given proprietary food were incorrect. The firm took the criticism in good part, improved their methods and now put out a preparation which conforms to their claims. So, too, most of the bacterial serums now on the market have failed to realize the hopes expressed. But the various manufacturers are employing competent bacteriologists and physiologists and are conducting elaborate plants both for the preparation and the testing of their products. It is obvious that, if we ever have good results on a practical scale from such preparations, we must rely upon the wholesale manufacturers and must make allowances for the inevitably imperfect scientific knowledge upon which their preparations rest.

Unfortunately, the fifth class of proprietaries, advertised ethically to the profession and also as ordinary quack medicines to the laity, include a number of very excellent and elegantly prepared medicines. One firm is particularly guilty in this matter. It is exceedingly difficult for the conscientious physician to decide what to do in such a dilemma. He dislikes to abet such dishonorable firms and yet he cannot very well decline to prescribe a drug that he feels he needs in a given case nor prescribe it in the very crude form within the power of the retail druggist. Ultimately the problem will undoubtedly be solved by the competition of wholesalers not addicted to double dealing.

Finally, there is a point in ethics, from the side of the manufacturer, which we have not seen mentioned in the literature of the subject. When a reputable firm places before the profession a really valuable new article, either as the result of costly experiment or simply as a matter of ordinary business enterprise, and it is imitated without improvement by other firms, it seems to us plain that the profit should accrue to the original producer and that other competing firms should be frankly told that the benefits of trade do not belong to them.

A. L. BENEDICT, M.D.

Buffalo, April, 1906.

Myxœdema in the Male.—An interesting case is reported by Finley (*Montreal Med. Jour.*). The patient was admitted to the hospital in November, 1904, complaining of diarrhœa, headaches, weakness in the arms and legs, shortness of breath and swelling about the eyes. In 1900 he first noticed swelling of the eyelids; two years later his hands and legs became weak—a symptom aggravated by cold weather. Diarrhœa had been present for nine months before admission. The skin was very harsh and dry, but elastic; the subcutaneous tissues were not thickened. The facial skin had a brownish tinge; the fingers were thick and the hands broad. The pulse was always below 60. The thyroid was not palpable. The patient was quiet, spoke very little and slept a great part of the day. He was given 2 gr. t. i. d. of thyroid extract, increasing up to 5 gr. t. i. d. His symptoms improved; the œdema decreased; the skin became soft and moist; he slept less; the last symptom to disappear was his sensitiveness to cold. Practically no change in weight occurred. A year after he was perfectly well, able to work and was still taking thyroids.

RETROSPECTIVE THERAPEUTICS

THE SWING OF THE PENDULUM—GONORRHŒA.

One of the most curious phenomena in human life is the extremes to which popular opinion will swing in regard to pretty nearly every custom and expression of political belief. Any physician watching medical literature for a few years will notice the same phenomenon, but, in this instance, it is less easily accounted for. The people generally are inevitably swayed by conflicting emotions and cannot be expected to exercise the same conservative judgment as a mature and specially educated profession. Then, too, a popular inconsistency in regard to a tax levy, an election of officers, etc., may really express a perfectly sane and reasonably good judgment. A new political device or a new candidate appears, on the best possible preliminary examination, to be good; actual trial proves that a mistake has been made and the people seek to rectify it.

A new drug, a new scientific force applicable to medicine ought to be received in a liberal and even optimistic spirit. Disappointment may be expected in the majority of cases, but there is still the same practical wisdom in trying the new, with due caution and in a non-committal spirit.

It is not to any such swinging of the pendulum of medical practice that we allude. Even if physicians are deceived by too glowing advance reports or by early results, they are scarcely to be blamed and certainly not for revising their opinions in the light of accumulated experience.

But, in matters susceptible of statistic proof or disproof, by laboratory or even clinical methods, it does not seem on the face of the matter, that there can be any great change of opinion, unless we contrast the views held at times far removed from each other and foreshorten the gradual development of information.

Twenty years ago, the prevailing opinion popularly, and among the great majority of the medical profession, was that gonorrhœa was a very trivial affection, often compared to a cold in the head. To-day prominent gynecologists hold it as the predominant cause of pelvic trouble, many genito-urinary specialists state that it is scarcely curable unless treated early, ophthalmologists refer to it as an important cause of blindness, sociologists treat of it as a prime cause of sterility and even medical men lecturing to students on moral topics, set it forth as an incurable, often fatal, and always terrible scourge of civilization, more to be dreaded than syphilis.

We have no special objection to any one's exaggerating or even going deliberately beyond the bounds of truth, if he can thereby influence large numbers of young men to lead upright lives and prevent blindness, acute fatal sickness, the distressing and life-shortening lesions of the male urethra, bladder and kidney, and the invalidism of innocent young wives and the limitations of reproduction.

A year or two ago, a medical student, advised by a friend, supposedly another medical student, to instill urine into his eyes for conjunctivitis, exacerbated or induced a gonorrhœal ophthalmia which eventuated in blindness. With this case as a text, the students were assembled for a lecture and thoroughly scared, as to the probability of gonorrhœal infection and its results. The same subject matter and similar articles have since then had wide and general circulation through the medical press and the profession has been placed on record as entertaining a far different conception of gonorrhœa from that taught by the best and most conservative authorities.

It occurs to us that the time has come for some one to try to stop the pendulum before it swings any farther in its present direction, for we have observed that pendulums of thought have the same general tendency as material ones, to swing very nearly as far in the opposite direction. For example, we can remember very easily when the medical view of the consumptive was about the same as of a leper, whereas, at present, many if not the great majority of those treating tuberculosis as a specialty, are trying to induce us to regard the consumptive as a much abused individual, who should have free access to our country, our hotels and watering places, our public conveyances and our homes, although there is not a particle of proof or even the claim of proof against the universally accepted dicta that the tubercle bacillus is the cause of consumption, that the majority of cases of human tuberculosis are due to a special human variety of the bacillus, and that this bacillus is given off, in a virulent state by every patient who has any avenue of discharge from a tuberculous focus.

In opposing the present view as to the extreme gravity of gonorrhœa, it is scarcely necessary to state that we are in most hearty concord with the effort to induce young men—and old ones—to lead proper lives. We are not, however, so enthusiastic about securing this result simply by emphasizing the danger of consequences. In a purely ethical sense we have always questioned the genuineness of conversions or the maintenance of outwardly Christian lives, due largely to the fear of hell. So, too, we doubt whether the young man who is warned as to prostitutes and loose women on the ground of venereal disease, is approached in the right spirit. Men who ought to know are nearly unanimous that such disease is not very common among prostitutes of what are termed the better class. It is impossible to make an accurate prophecy, but is it not worth while to inquire seriously whether purity talks, in which facts are grossly exaggerated and in which too much stress is laid on the venereal consequences of sexual immorality, will ultimately defeat their own object?

In the first place, young men in the aggregate are far from being fools, and it occurs to us that a talk based on the unfortunate experience of a medical student who used urine as an eyewash, and urine during an attack of gonorrhœa at that, would be more apt to emphasize the relative safety of a man who had some vestiges of decency and common sense than to point the moral intended. Such a case is too much like the classic one of the medical student who was injured by a cartwheel—the affected person had no business to study medicine.

Secondly, a warning against the dangers of venereal disease is like a warning against intemperate eating and drinking based on the liability to bacterial infection or intoxication or gross poisoning, instead of directing the attention to the main point at issue, it simply points out the need of caution. All purity talks warn against the danger of "private snaps," in order, we suppose, to show that caution is vain, but

the common statement that "private snaps" are more likely to produce infection than prostitutes, is true, only if we mean by them girls of the lower order, who are a little less businesslike and a little less cold-blooded than professional prostitutes. A warning based on the danger of venereal infection does not repress an appetite, does not elevate the moral nature, it simply points the way to ruining virtuous girls, destroying homes and indulging in filthy perverted methods, or to the use of artificial preventives which are certainly effective so far as strictly local venereal infection is concerned, or else it tends to suggest premature marriage with base ideals.

Finally, any exaggeration of facts always tends, ultimately to defeat its own object. However great the deterrent effect of a purity talk in which gonorrhœa is represented as an almost inevitable result of extramarital intercourse, and as being a disease worse than syphilis and plague, the reaction is bound to follow. It is simply a matter of common observation that, with due precautions, sexual intercourse may be indulged in without much danger of venereal infection, that men and women who have had gonorrhœa, have become perfectly well, so far as their own sensations and their power to transmit disease, are concerned. Gonorrhœa is an exceedingly prevalent disease, affecting, at one time or another, probably fifty per cent. of our men. Many authorities place the incidence even as high as 90 per cent., although this is undoubtedly an error. If it were the terribly incurable, transmissible and sterilizing disease taught by so many, we should be in a condition of race suicide even if the other fifty down to, say, twenty per cent. of our population were exceedingly prolific, and we should enjoy no such standard of health as at present. These facts are bound to impress themselves on the average young man in course of time, and to the discredit not only of the personal purity speaker but of personal purity as an ideal.

From the purely scientific standpoint without reference to moral and sociologic features, the following statements seem justifiable. It would be desirable to put them in the form of statistics, but it is extremely difficult to collate such statistics, except for series which are not representative.

1. Gonorrhœa in the male is in the acute stage mainly a local disease, limited to the urethra, also involving the glans and prepuce and often the bladder. Sterility, prostatic disease and ascending infection of the urinary tract are fairly common results of extension. Fatal ascending infection is neither common nor phenomenally rare. A properly and promptly treated gonorrhœa is not very likely to leave behind strictures or mechanic lesions that cannot themselves be radically cured. Thus prostatism, catheter-life and senile bladder and pyelitic lesions even when ascribed to gonorrhœa are really the result of inadequate treatment.

2. Gonorrhœa in the female is very apt to involve the peritoneum though generally only of the pelvis. Gynæcologists estimate the relative frequency of gonorrhœal lesions anywhere from 10 to 90 per cent. of all pelvic lesions. After radical operation, very good general health is usually attained, unless operation has been unduly deferred. Pus ascribed on clinical evidence to the gonococcus is prone to become sterile, if long retained. Many cases recover symptomatically without operative interference. Urinary lesions are, on the whole, of less importance than in the male, genital lesions the reverse, owing to anatomic differences.

The great discrepancy as to statistics may be explained partly by differences of clientele of different gynæcologists. The personal equation is also a factor. For instance, we recall a case of pelvic operation in a young woman, ascribed to gonorrhœa without bacteriologic evidence or history of an acute clinical attack but simply because the girl was a waitress. There was nothing specifically diagnostic in the lesion found. With all allowance for an excusable cynicism, it is obvious that such a mental attitude as this would tend to exaggerate the reported incidence of pelvic gonorrhœa.

3. Gonorrhœa, conjunctivitis and ophthalmia is charged with a considerable proportion of blindness. While statistics are easily available, they are not entirely reliable nor are they so important as may seem, for suitable treatment has been proved to be almost an absolute preventive of ophthalmia neonatorum. It is also plain that the gonococcus is not so virulent for the eye as it is often considered, for, otherwise, accidental autoinfection would be extremely common, instead of quite rare. At any rate, this complication, although terrible in its result, is neither particularly common nor at all inevitable if ordinary precautions are taken.

4. Like the pneumococcus, typhoid bacillus and many other germs, the gonococcus may invade the serous and synovial membranes and may even produce a true pyæmia. Gonorrhœal arthritis is the commonest of these general, metastatic complications, and while a serious condition, is not often fatal nor necessarily incurable. It is impossible to state what proportion of cardiac lesions are due to gonorrhœa, or indeed to any other infection, largely because of the preconceived idea of rheumatism as an etiologic factor. So far as can be determined from clinical reports, it seems that non-pulmonary pneumonia is considerably more frequent than non-genital gonorrhœa, referring in each instance to metastasis and not to local extension. We have noted, in the last year, only one report of gonorrhœal pyæmia, a most exceptional fatal case, preceded with blindness. (See *Am. Jour. Med. Sci.*)

5. Sterility is certainly due in considerable degree to gonorrhœa, of the male or female or both. When, in the case of married women, no precautions have been taken to prevent conception, pregnancy often, perhaps usually occurs, but the gonorrhœal infection often prevents further reproduction, at least for a considerable period. The New York committee of fifteen have stated the opinion that 50 per cent. of sterility is due to gonorrhœa. L. H. Dunning, however, found sterility in only about 50 or 548 married women and only 8 or 9 of these revealed the presence of the gonococcus. Ten or 11 had used preventatives and various other conditions preventing pregnancy were found, so that nearly half of his sterile cases could be shown to owe their sterility to some definite condition other than gonorrhœa. It is obvious that it is no easy task to assign the cause of sterility nor to settle definitely which of the two per-

sons concerned is at fault. Too hasty conclusions are sometimes drawn from a single finding of a dead spermatozoa. Certainly, every general practitioner can cite numerous cases of male gonorrhœa followed by fruitful marriage. On the other hand, it must be admitted that male gonorrhœa is, in a considerable number of cases followed by more or less persistent sterility, that the disease is frequently communicated to innocent wives and that any serious and extensive pelvic gonorrhœa in the female is directly or as the result of necessary mutilation, followed by permanent sterility in the majority of cases. A very favorable corrolary to these observations is that the immoral stratum of society tends toward extinction, although, unfortunately, those who are only accidentally immoral or who are merely the victims of immorality, are also involved. Still, on the whole, the tendency is greatest for those most thoroughly steeped in immorality.

While the argumentum ad hominem is not altogether scientific, it is certainly allowable in deciding matters of relative desirability and undesirability. In spite of all that has been said and written as to the destructive nature of gonorrhœa and, especially as to its being a worse disease than syphilis, we are inclined to believe that, if the matter were presented to the medical profession individually, almost every one would choose gonorrhœa to syphilis. Omitting all qualifications as to morality, we are also inclined to believe that most physicians would choose gonorrhœa to tuberculosis, ecchinococcus disease, variola, and perhaps even pneumonia, diphtheria, typhoid, etc.

This does not, by any means, place gonorrhœa in its old category with a severe coryza, nor is it tantamount to saying that even the newer silver preparations have made it an easily curable disease, nor does it overlook the serious and even fatal tendencies of a neglected or especially virulent infection. Certainly, it does not remove the necessity of a vigorous campaign against immorality.

The Instruction of the Young in Sexual Matters.—In considering this topic, a very important item is the age at which sexual instruction is to be imparted to the child, if it is to be given at all by responsible adults having a moral obligation to the child, as parents, teachers, family physicians, religious instructors, etc. There can be little or no objection to the dictum that sexual knowledge in advance of sexual development, is unnecessary and undesirable. In other words, until puberty, the ideal child should be kept in a state of innocence.

Under certain conditions of secluded life, innocence can, of course, be maintained until the child's attention is drawn to the physiology of sex by spontaneously appearing manifestations in his or her own body and sensations, that are conspicuous and that will lead to self questioning if not direct appeal to others for information. Novelists have been rather fond of dealing with the problem of girls or boys kept in a state of primitive ignorance until maturity and, in women especially, while absolute ignorance of reproductive phenomena rarely is retained until late, a degree of ignorance about sexual matters which is sometimes amusing and sometimes sad in its consequences, is by no means rare. For instance, a few years ago, the writer was consulted by a woman of 25 who actually thought that she might have been impregnated by a caress, certainly highly improper, but purely manual. Venereal disease of innocent wives and children is, as is well known, largely dependent upon failure to instruct girls in such matters.

Whether, under ordinary conditions of life, children can be kept innocent until the age of puberty, is very doubtful. The writer's personal experience, both in the city and during vacations in the country, was that boys ceased to be innocent at about the age of five, and that by the age of eight they were able to recognize pregnancy, menstruation, and eroticism in their elders and that, in general, they had about as good a knowledge of sexual anatomy, physiology and pathology, as the average layman ever attains. Of course, any such statement must be qualified by the admission that an immature mind never has the full appreciation of facts that a mature one has.

Whether the writer and his associates were exceptionally precocious it is impossible to say. Certainly, they had no realization that they were further advanced than other boys and their sources of information were merely tradition, quack advertisements, books accessible only to a favored few and then surreptitiously and, as an authority of final resort, the "boy who works in the drug store."

Whether or not it is possible for a boy to remain innocent of sexual lore after he begins to play with other boys without constant supervision by adults, is very questionable. At any rate, any quick-witted adult who has not forgotten his own youth and who is still admitted to the outer circle of the aristocracy of childhood, can very readily tell when the time is ripe to revise the teaching of the patent medicine dodger, and the boy who works in the drug store. Unfortunately, so many grown persons seem to have no memory extending further back than their adolescences. In talking with children, they try to define every third word they use, they drop the first and second personal pronouns and speak in the third person, and they assume an idiotic air of dignity and condescension to which the child responds with a frigid assumption of ignorance and imbecility. Afterward, the child tells his companions what the grown-up said and how he said it and the consensus of opinion would wither the grown-up's dignity and condescension if it could get to him through the double ring that he has drawn around himself and caused the child to draw around himself. It is perhaps fortunate that adults of this stamp do not usually realize when the period of innocence ends and that of concupiscence begins, for they could not possibly get to the child on his own level and have any influence over him. Fortunately, in almost every "gang" of boys, there is some one who has a father or uncle or friend who is at once clean-minded and enough of a boy to be welcome among the boys and, from this influence, boys usually learn to avoid masturbation and are steered clear of sexual dangers until, at least, they have reached adolescence, when the problem becomes simpler. But there are exceptions enough to make one shudder and, every once in a while, some little boy falls in with a crowd of coarse youths who teach him all sorts of viciousness. And sometimes he learns his lessons in vice from a nursemaid, a teacher, an aunt, or some false female friend of the family.

We imagine that the conditions among little girls of five to eleven are somewhat similar, but that in-

nocence is usually longer maintained, while, per contra, when they fall under bad influences, the conditions are worse than among boys.

After the age of puberty, the conditions change very materially. There need no longer be any hesitancy at instructing the youth in sexual matters. Innocence is a thing of the past or ought to be, if it is not. In place of childish curiosity that may lead to self-abuse, precocious intercourse and an impersonal interest in improprieties, we have to deal with the awakening of genuine sexual instincts, which may lead to true habits of masturbation and other forms of sexual perversion, to venereal disease and to pregnancy of female companions. Of course, it is impossible to draw any hard and fast line between the two aspects of the problem, yet, generally speaking, puberty occurs rather abruptly and the possible dangers are, in the main, different, on the two sides of its broad line.

The writer is firmly convinced that, as in most other moral problems, salvation must be worked out individual by individual. Published treatises and lectures, no matter how carefully applied, cannot be made to fit all cases, nor can any one adult get into touch with all members of a large group. If tracts are distributed, they are pretty sure to reach the hands of children too young to have them, and both tracts and lectures are apt to be misconstrued and perverted. If every parent, every teacher, every family doctor, every minister, would feel it his duty to see that every youth with whom he comes in contact is properly instructed, few would be omitted. Sometimes the task can be better done by one of these men, sometimes by another. Tact and intuition must decide this point. So, too, they must decide the manner in which the information is imparted. It is worse than useless to put the matter on a religious plane in talking to a boy who is not of a religious nature. If the adult is himself a rounder, however sincere his desire to preserve some one else's youthful purity, he had better drop all pretense of morality and speak as an experienced man of the world to a younger and less experienced one, or else get somebody else to do it.

All things considered, we are inclined to believe—although the opinion is far from ideal—that the best aggregate results are acomplished by those men who make no pretense to high morality, who do not attempt to scare the youth by exaggerated accounts of possible consequences of yielding to temptation, but who state uncolored facts and who inculcate, not the ideal religious or moral standard, but the working standards of decent living as viewed by men of the world. The boy will soon learn, if he does not already know, that the average man of good standing in the community is not a virgin, that pregnancy is not an inevitable result of intercourse, that venereal diseases are often escaped and usually cured or, at least, alleviated to such a degree that the laity considers them cured, and that most men tell bad stories. According to the religious and moral standards, there is no perspective to vice. It is the religious men who tell rotten, pointless stories at banquets, and who, if they go wrong at all, seduce innocent virgins and abuse positions of responsibility to secure victims of their sensuality. Of course, at the opposite extreme, they meet men utterly devoid of decency and honor. A good many centuries of experience have pointed out about what can be expected of men in these regards. Frequently we encounter youths who can be appealed to, on the highest religious and moral plane. More often we know, if we are honest with ourselves, that the youth with whom we come into touch is bound to be more or less lewd and to depart from the path of virtue. If we attempt the impossible, we simply drive him away from what influence and protection we can afford him. We can, at least, teach him to follow Lincoln's example in making his stories pointed and in causing some flower of wisdom or morality to grow out of the mire, rather than to indulge in a literal coprolallia. We can teach him the unmanliness of perverted sexual practice. We can probably secure for himself as well as for his future wife and children, freedom from venereal disease and the neurotic results of sexual excess. We can induce him to draw a sharp line between what is merely wrong and what is low-lived and dishonorable in his relations with the opposite sex. Simply as a matter of selfish hygiene and expedience, we can often induce him to postpone his tour of investigation into a forbidden territory, so long that he will fall under the influence of a genuine love for some one pure woman and lose his inclination to depart from the path of rectitude.

Testevin's Reaction in Children's Diseases.—Dickinson examines in *The British Journal of Children's Diseases* the work of Modena in the Clinic at Pavia with relation to this reaction, which is described as follows: One part of ether is poured into a test tube containing two parts of acid, fresh urine from which the coagulable albumen has been removed by acetic acid, boiling and filtration; the mixture is then well shaken and left to stand. If there are albuminoid substances in the specimen a kind of fat emulsion will appear on the sides of the tube, which soon solidifies and forms on the top of the urine a kind of plug-like collodion, which is often of consistence sufficient to permit of the tube being reversed without escape of the fluid. The consistence diminishes if the tube is left uncovered or placed in the heat, while under opposite conditions it may last for weeks. The reaction may fail if the urine is alkalinized. The coagulum is formed in albuminous urine, but is less marked than after the elimination of serum and globulin. The principal diseases in which this coagulum is noticed are: syphilis at any period, diphtheria, typhoid, malaria, tuberculosis, meningitis, gastro-intestinal disturbances and nephritis. The coagulum is more voluminous and dense in the acute stage of these diseases and in grave cases; but the phenomenon persists in a lesser degree some time after recovery. To insure a fixed method of clinical research 5 c. c. of urine were used in every case and the height of the coagulum measured; and among the results noticed were that in diphtheria the height was never very marked; it became higher in scarlatina and attained its maximum in measles. Modena finds that Testevin's reaction is a phenomenon which occurs in definite and fixed conditions: probably the body giving rise to it is an albuminoid of the peptone class; the reaction is wanting in healthy subjects, but is almost constant in the sick, in whom it is very variable owing to circumstances as yet not well ascertained—the

greatest increase, however, is in relation with thermic increase; hitherto it has not been possible to attribute any striking diagnostic or prognostic value to this reaction, but it would be interesting to ascertain its place in biological chemistry and the laws which govern it.

Pain Referred and Reflected.—J. Sherren (*Clin. Jour.*) defines the former as the result of stimulation of a nerve in its course, or perhaps to stimulation of a branch, the pain being felt, in the case of the main trunk (as the ulnar nerve) in the area distal to the point stimulated; in the case of the branch (as in a distribution of the trigeminal nerve), it is felt in the whole cutaneous distribution. Reflected pain is localized to the surface of the body, occurring in association with visceral disease, or perhaps with joint disease; for example, the pain felt in the right side of the abdomen in certain cases of appendicitis. Sherren emphasizes referred pain resulting from injury to a peripheral nerve produced by an accident or during the course of an operation. In primary suture of an accidentally inflicted nerve wound, silk should never be used in suturing because of the ease with which this substance becomes infected and of the difficulty of making such wounds aseptic. The treatment is the same in all cases of referred pain and cutaneous hyperalgesia following injury of a nerve in continuity. The injured part of the nerve should be removed by operation; the ends should then be approximated and sutured. Referred pain may result from a surgical operation, and it may also arise from pressure, or from involvement of a nerve in disease. Errors in diagnosis are thus likely.

Tuberculous Pleurisy is a vital subject, considering how frequently pleural lesions either precede or accompany pulmonary tuberculosis. Martin (*Lancet*, March 5, '06) finds the course of primary tuberculous pleurisy to be very varied; an accurate prognosis in the acute stage of the disease is impossible. In diagnosis must be considered: The mode of onset. The course of the disease, including an examination of the pleural fluid obtained by puncture. The pyrexia in tuberculous cases is frequently much more prolonged, even in the absence of empyema; this symptom in the absence of suppuration or other complication is a strong evidence of tuberculosis. The pleural effusion tends to reaccumulate, requiring paracentesis several times for the patient's relief; it sometimes coagulates spontaneously, unless the disease has become chronic. The result of guinea pig inoculation is often positive. Occasionally the development of peritonitis evidences the tuberculous nature of the case. With regard to the after effects of the disease on the chest wall and lung: There is often such an association. In many cases there remain a greatly thickened pleura. The chief physical signs are well marked retraction of the sides, chiefly the base, and deficient expansion. After a time dilated bronchi may be manifested, even with every other evidence of physical well being. The main factor in treatment is to remove the fluid from the chest. Cases running a prolonged course are best treated by lying in the open air, properly wrapped up; there should be generous feeding. By these means a perhaps fatal tuberculosis may be avoided.

The Treatment of Bronchial Asthma is divided by Nelson (*N. Y. Med. Jour.*, Jan. 6, '06) into that during the attack and the management during the intervals. The exciting cause—overloaded stomach, constipation, smoke, dust emanations from animals, or exhalations from plants—should be ascertained and, if possible, removed. No drug is specific; however, atrophine gr. 1-150 alone or with morphine, the latter only in severe cases, hyoscine hydrobromide 1-150 gr., or adrenalin 4 to 8 min. in a 1-1,000 solution hypodermically, may be effective. Inhalations and prepared powders are useful; warm vapor, combined with hot hand and foot bath; turpentine and carbolic acid in hot vapor; the smelling of spirit of ammonia; inhalation of the smoke from dried leaves of hyoscyamus and stramonium each 3 gr.; belladonna, 6 gr., with a minute dose of powdered opium; fumigation with sodium nitrite paper. Hot coffee internally; such mydriatics as belladonna when innervation is disordered or there is spasm of muscles tending to narrow the bronchi; a motor stimulant to restore the rhythmic contractions. Chloral hydrat may be given in large doses, as also sodium nitrite, spirits of Glonoin, or ethyl nitrite, as indicated. The nose is to be carefully examined; as also the kidneys, uterus and stomach. There may be dilitation of the right heart, causing nervous stasis and low pressure pulse; the circulation may have to be equalized by means of ergot or adrenalin. Tonics—iron, quinine, cod liver oil, phosphorous, nux vomica—may have to be given in ascending doses, continuously and without reference to the attacks. Lobelia and ammonium chloride may have to be given for distressing cough; atropine for profuse secretions. Open air, without winds and extremes of temperature, are advisable; humidity is bad. Various climates are indicated; these are a matter of individual experience. The sufferer should wear woolens; metabolism and the functions of the skin and excretory organs should be regulated. Foods which result in fermentation, constipation and chemical irritation—fats and sweets, pork, veal, cheese, malted liquors, heavy wines and champagne—are forbidden. Dinner should be the midday meal; supper should be light; much water is not to be taken at meals.

The open-air treatment of tuberculosis is dwelt upon by Griffin (*Bost. Med. and Surg. Jour.*, Mch. 15, '06), who would have the patient not only in the open air all day, no matter how cold, but would also have the windows open all night. There are many forms of out-door shelter; the essential is that they shall keep out the wet. There must be plenty of covering all over the body, so that it does not feel chilled. Woolens should be worn next the skin. Old-fashioned felt shoes make the best foot covering. There should be a heavy blanket over the mattress; and a blanket may be laid loosely between the sheets so that the body may be rolled in it. Griffin wisely does not "stuff" his patients; health is no more promoted by forced than by moderate feeding. There is no use in overloading the digestive powers; this indeed is detrimental. The giving of eggs has been overdone. Exercise must be carefully regulated. Deep breathing should not be prescribed in rapidly advancing disease, especially where there is pleurisy. Here nature is likely to give us a cue and by pain to limit the respiration. In other cases, however, moderate deep breathing is indicated, for thus better aeration is secured; we cannot get rid of diseased tissue if the blood be poor in oxygen.

The enlarged prostate is one of the most unsatisfactory conditions with which either medicine or surgery has to deal. There are a multiplicity of operations proposed by surgeons, each of whom assures us that his own method is altogether effective. We have, however, learned by experience that we must not hope much with regard to conditions for the relief of which many remedies are forthcoming. Wallace discusses the nature, symptoms and treatment of enlarged prostate (*Practitioner,* Sept., '05): Of the two functions ascribed to this gland—that it is a sphincter of the bladder, and that it is a secondary sexual gland—the latter is in Wallace's opinion the real one. The theories as to the cause of the enlargement are: It is a senile fibrotic change; it is produced by sexual excess; it is due to ungratified sexual desire; it is secondary to vesicular degeneration; it is due to perverted testicular secretion; it is a change normal to advancing years; it is due to a chronic inflammatory process; it is an inflammatory catarrhal process; it is a new adenomatous growth. As to the appearance of enlarged prostates: The changes do not occur before middle life; there are white opaque areas of gland tissue in the normal spongy tissue; these areas often form encepsulated tumors which contain more fibrous than muscular tissue; there are areas of round celled infiltration in the organ; the alveoli contain desquamated epithelium cells, polymorphonuclear leucocytes and amyloid bodies. Wallace believes the enlarged prostate is a new growth. The chief symptom is either frequent micturition or retention. The first of these is characterized by increased tension of the urethra, pressure on the outer side of the intra-vesicular cone, and the forcing of a large lobe against its smaller fellows. The causes of residual urine are not clear. Palliative treatment consists in properly regulated catheterization and rest in bed. Operation in indicated: when the catheter cannot be passed; when it causes pain or hemorrhage; when there is complete retention. One may do castration, vasectomy or prostatectomy. The last of these is usually preferable, except when there is acute retention or exhaustion from sepais. The ultimate results of the operation, declares Wallace, are usually most satisfactory.

Cardiaspasm.—Erdmann reports (*Ann. Surg.*, Feb., '06) the results of operation on a case twenty months after. The patient first noticed a peculiar "swallowing rattle" in her throat, which in several weeks after was followed by difficulty in swallowing foods, the sensation being as of pressure back of the lower portion of the sternum. There was invariably, after a short period, vomiting of from two-thirds to the whole of ingesta. All palliative measures failed to relieve. On operation, by means of a medium epigastric incision, the stomach was found lying in an absolutely transverse position and contracted so that it was less in diameter than the large intestine. The finger could not be introduced through the contracted cardiac opening. The lower end of the œsophagus formed a large pouch. The contracted opening was stretched with the fingers, passed in through an incision in the long axis of the organ. This opening was closed by three rows of sutures, the first and second being continuous chain stitch and the third Lembert. The patient made an excellent recovery.

Valvular Heart Disease.—Crawford, in a valuable paper (*Practitioner,* Nov., '05), declares that so long as compensation is maintained in mitral insufficiency treatment consists in a quiet, well-regulated life, with only such restrictions as are applicable to all forms of valvular disease. Too much rest in heart disease leads to obesity, by means of which another burden may be laid upon this organ, further weakening it. Modified diet should not be depended upon alone to correct this; the best results will be obtained from a mixed diet, restricted in amount and without alcohol. With incipient failing compensation, specific cardiac tonics should not be employed; it is likely that at this period irritability needs treatment rather than weakness. Bromide of ammonium, with arsenic are then appropriate. Diet should be regulated so as to avoid dyspepsia; there should be no cardiac irritants, such as tea, coffee and alcohol. Tobacco should be restricted. The bowels must receive attention. Mental tranquility must be insured. Digitalis is indicated when the feeble and irregular heart becomes manifest. This drug helps to unload the veins and thus enables systole to act at a greater mechanical advantage. The arteries fill better and the amount of mitral reflux is diminished. Digitalis should be given circumspectly when there is high pressure, or when the arterial walls are degenerate. If given at all it should be combined with a nasodilator, such as liquor trinitrini; or it may be replaced by strophanthus. In these circumstances digitalis should be given up as soon as its good effects are fully established.

When there is complete cardiac failure with general anasarca, digatalis is useless and often harmful until some effective measures have been adopted to relieve the venous stagnation. Rest in bed, combined with free purgation, and milk diet for its diuretic effect, may suffice to clear the way for the action of digitalis; in extreme cases, however, neither purgatives nor diuretics will avail. Preliminary vivisection, with removal of six to eight ounces of blood, should be ideal treatment; but this is generally objected to. If it cannot be done the patient should be made to sit up so that as much fluid as possible may gravitate to the feet, to be liberated by linear scarifications on the dorsum of the feet, and deep enough to reach the subcutaneous lymph spaces, care being taken not to draw blood. [The sitting posture may result in collapse; an enormous amount of fluid may be abstracted by sterilized needle pricks along the dependent portions of the trunk and lower extremities, while the patient lies on his back.] Before scarification surgical cleanliness of the skin must be assured and wrappings of boracic lint, wrung out in hot water, and surrounded by absorbent wool, must receive the drainage. As the fluid is drained away the urine increases and digitalis is appropriate to restore the failing vigor of the heart. This drug may be reinforced by caffeine, which is powerfully diuretic; or the old formula—digitalis leaves, blue pill and squill—may be tried. A simple mixed diet may now replace the milk; soups and meat extracts are not appropriate. They take the form in which nitrogen should leave the body and not enter it; the diet should moreover be relatively dry.

Massage acts on the skeletal muscles as does digitalis upon the myocardium—it helps mechanically to

empty the overloaded veins and at the same time flushes the ill-filled arterioles. Massage sets in action the peripheral heart, and should be tried when the œdema has been dissipated; the systematized exercises of Schott and Ling and the Zander Institutes should be employed. The opening up of a multitude of fresh vascular channels will generally give much relief to an overburdened heart. Baths, such as at Nauheim, should do good in mitral regurgitation with failing compensation. Extravagant and unsubstantiated claims have been made for these baths; but they have certainly been effective in some instances. Crawford, in his own personal experience, vouches for some initial slowing of the heart, possibly by reason of reflex stimulation of the cardioinhibitory center from the cutaneous nerve endings by the action of carbonic acid gas. Later there sets in an abiding dilitation of the cutaneous capillaries with disappearance of the initial slowing of the heart. One must not forget the stimulation of the nervous system and the deepening of respiration which an ordinary bath gives.

Parathyroids are related to Paralysis Agitans in the opinion of Berkeley, expressed in an able paper (*Med. News,* Dec. 2, '05). Atrophy or insufficiency of these glands is perhaps the cause of the latter affection. He administered a physiologically tested gland in eleven cases, in all grades of severity; in every case a definite increase in mental energy and comfort was experienced during the treatment. The product should be tested physiologically before administration, and should be kept on ice till used. The initial dose of the powdered gland is 1-20 grain from two to four times a day in a capsule; larger doses appear to produce weakness, constipation, nervousness and even an exaggeration of the symptoms of the disease. Some seventy capsules must be taken before good results are seen.

Neurasthenia is treated by Plecker (*Charlotte Med. Jour.,* Nov., '05), as follows: Absolute rest in bed; no visitors, even no members of the family; forced feeding, fats, cream, milk, eggs, etc.; general massage, paying especial attention to the abdomen if there be constipation; a mild faradic or galvanic current, given at a different time than the massage. In the less severe cases this treatment may be greatly modified; sometimes all that is needed is a rest from the ordinary routine of life. Some patients do well traveling or in a complete change of climate or environment; here over-fatigue is to be avoided and sight-seeing restricted. Treatment must be adjusted for the individual. The nervous should first be soothed by means of bromides. The anæmic should have iron in large doses. A food preparation of malt may be given. Ergot is indicated for cerebral and spinal congestion. Caffein and cannabis indica are useful for sick headaches; zinc preparations for their sedative effects; muriatic acid for digestion. The stomach should often be washed out before breakfast. Blisters and other counter-irritants sometimes give marvelous results, as does also cold water rubbing. (We would emphasize in this treatment the exclusion of visitors, *especially* the patient's immediate relatives; and cold water rubbings. A rough towel soaked in brine greatly helps the "peripheral heart. Cannabis indica is a dangerous drug for neurasthenia, unless the physician can govern the dosage. Such patients are apt almost to eat this drug, with sometimes disastrous results).

Chalazion, or tarsal cyst, is due to a blockage and swelling of the Meibomian glands, which are situated in the tarsal cartilage; the overlying skin is freely movable over it and the conjunctiva covering the tumor is reddened and protruding. When small, absorption may be attempted by the use of Pagenstecker's ointment (℞ Hydrarg. Oxid. Flav. gr. iv., petrolati ʒ ss. M). When inflamed and pointing the little abscess can be incised after eversion from the conjunctival surface upon instilling a 4 per cent. solution of cocaine or a 1 per cent. solution of stovarine. The contents of the tumor must be expressed and well scraped out with a suitable scoop; as this is sometimes very painful, a few grains of powdered cocaine can be introduced into the cavity. The scraping is necessary, otherwise unsightly granulations may appear, or the whole abscess cavity reform, necessitating a second operation. There will be some swelling a few days after the operation, due to effusion of blood in the cavity. When conjunctivitis or corneal ulcers are present the operation had best be postponed until they are cured.

Without mosquitoes no yellow fever is the excellent and probably correct thesis of Carroll (*Am. Med.,* Mch. 17, '06). The parasite of this disease belongs to the animal kingdom, for the following reasons: It is absolutely necessary for its continued existence that it pass alternately through man and the mosquito; its parasitic existence in these hosts is obligatory. About two weeks must elapse before the contaminated mosquito can infect; this indicates a definite cycle of development in that insect. The limitation of its development cycle to mosquitoes of a single germ and to a life history of bacteria. The effects of climate and temperature upon *stegomyia* and upon the rate of desingle vertebrate conforms to a natural zoologic law and does not agree without present knowledge of the velopment of yellow fever parasite within the body of the insect are exactly the same as the effects of the same conditions upon the anopheles mosquito and the malarial parasite.

Life as lived in New York has been described by statistics in the lay press. We rather imagine that if the reincarnated spirit of some ancient Babylonian were to visit this modern city he would have to admit that things certainly have moved since his time. A child is born among us every six minutes; every seven minutes there is a funeral. Every twenty-eight minutes consumption claims a victim; every fourth person dies of this disease. Accident kills a New Yorker every hour and three-quarters; upon this basis it is 2500 times safer to travel by rail than to remain in the metropolis. Some one drowns every eight hours, some one is burned to death every fourteen hours; street-car accidents lead to death every six hours. The yearly number of suicides is almost 2000; and poisoning is the favorite method of shuffling off. Suffocation by gas comes next in popularity; shooting is a comparatively rare method. April is the month of suicides, the average being one in eight hours; in winter it is much less. Some one is murdered every other day; and unsuccessful attempts to murder occur every eight hours. Potter's Field claims a tenant every two hours. There is a

marriage every thirteen minutes; one wedding in every forty leads to divorce. Three children are nevertheless born for each wedding, a very good average under these circumstances. An immigrant enters the city every forty seconds; and of all who come from Europe, one out of four remains here. Thus does New York increase nearly three times as fast from immigration as from birth. A house of some sort is erected every fifty-one minutes; $4.65 is expended every second for new buildings. There is a fire every forty-eight minutes, the loss being at a rate of $25 a minute. The city pays the federal government more than $13,000,000 a year for handling its letters. Two hundred and twelve letters are written in a minute. Some one is arrested every three minutes; and a "drunk" is "pulled in" every ten minutes. The Tombs engulfs a new prisoner every two hours; and one is sent to the state's prison every five hours. A new suit is entered every ten minutes; one is brought to trial every fifteen seconds; to manage these affairs a new lawyer is made every twelve hours. Trains arrive somewhat more frequently than one a minute; and a vessel leaves the harbor every hour.

The secret of the popularity of patent medicines has, it seems, just been learned by the English. *The Pall Mall Gazette* has reviewed a recent report of the Canadian Inland Revenue Department, which shows that the quantity of alcohol in some of these medicines—40 per cent. proof spirit—is much higher than that of the strongest port wine. "They are, in fact, not medicines, but intoxicating drinks." The Massachusetts State Board of Health has supplied us with such information as this several years ago.

Professor Curie, who was accidentally killed in Paris, made epochal contributions to the history of science. He and his good wife—neither would admit with whom the chief credit lay—together discovered the element radium, which played for a time great havoc with the well-established principle of the conservation of energy and with the atonic theory. The old term atom has had to be defined anew; and other terms (such as are set forth on p. 159 of the May issue of THE MEDICAL TIMES) have had to be invented. Professor and Madame Curie had by no means completed their investigation of the possibility of radium; and it has been well observed that his death "may be an event of greater actual importance to humanity than the horrors of earthquake and fire."

Old horse-cars for consumptives are described by our esteemed but somewhat belated contemporary, London Hospital. It was the genius and the enterprise of Dr. Peters, of Providence, Rhode Island, which several years ago disclosed the possibilities of superannuated trolley cars for consumptives. Now we find that the idea seems to have traversed the Atlantic. Old horse tramway cars are being utilized to this end in Leith. In a field with a southern exposure, near the Pilton Hospital, four old cars have been stationed, on the tops of which the fixed seats are cleared off and garden chairs placed, ready for the patients to use in salubrious weather.

Angioma of the scalp is a most distressing lesion, and one certainly most disheartening both to the patient and the physician; especially is this so if the lesion be extensive. Krogius has cured a very severe case by means of subcutaneous sutures (*Centralbl. fur. Chir.*, Nov. 9, '05). A curved needle, with the eye in the point, was passed beneath the mass of vessels and brought out through the skin about an inch away, threaded with one end of a heavy silk suture and withdrawn. It was then reinserted in the same spot, passed between the skin and the angioma and brought out at the same opening as before, threaded with the other end of the suture and withdrawn. A second suture was passed in the same way, the last hole of the first suture serving as the first opening of the second, this being continued around the entire proximal edge of the growth. All the ligatures were tied together.

Man can in future be made to order is the pertinent and comfortable reflection which *The Pacific Medical Journal* makes concerning the following statement of Prof. Oswald in a recent lecture at Columbia University: "Science is young. Some of the greatest of chemistry branches are not more than twenty years old. We cannot explain fully the fact of life, but I should not be surprised if some kind of artificial organism could be made by scientists which could feed itself and reproduce itself. After all, a living thing is nothing but a system of energy, and life is but a matter of chemistry." We sincerely hope Prof. Oswald's anticipations will not be realized in our times. In the ordinary intercourse of life we come upon odd enough specimens as it is, without desiring to put up with creations of the Frankenstein type.

The deadly clothes-brush is now receiving the consideration of the sanitarian. The *Lancet* finds that the brushing of dusty cloths in living-rooms is opposed to cleanly sentiment, apart from the bacterial danger to health inherent in this process. The clothes brush can easily be made a vehicle for the dissimination of disease. Dust is an enemy of the race, and should be prevented wherever possible. The clothes-brush is indispensable; it should be used in a manner as far as possible consistent with hygienic requirements. There should be a special room in every household relegated to this method of purification. Clothing may harbor the seeds of a common cold or a sore throat, or even streptocci and tetanus bacilli. Some kind of a vacuum brushing should be, and will no doubt soon be feasible.

Marriage, states *American Medicine,* is an institution highly conducive to the health of both husband and wife. Among married men over 20 and women over 40 the mortality rate is far less than among the single. Among the widowed and divorced the mortality is exceptionally great. Suicides are much more numerous among the unmarried than among the married. Every form of temperance is promoted by the marriage tie. The probable duration of life of a Benedict of 30 exceeds that of his unmarried brother by five years; and the wife may expect to live one year longer than a single woman of the same age.

The test-breakfast, declares Boas (*Brit. Med. Jour.*, Jan. 6. '06) should be given only in the early morning and upon an empty stomach, to insure which the stomach tube should be previously used. One roll of white bread, of about 35 grammes weight, and 400 grammes of water, or of tea without milk and sugar, are ingested. After an hour the contents or regained by the tube and examined. This simple procedure should be followed precisely. Einhorn, in his valuable work on diseases of the stomach, details the method of examination.

MISCELLANY

Servian student statistics show that men in that country are dropping medicine, while women are turning to this profession for a livelihood.

Books for the blind made of thin aluminum sheets instead of paper, and embossed in the usual manner, are being published by an Edinburgh company.

The Willard Parker Hospital, in New York City, has been remodeled, and the new laboratory building, one of the best equipped in the country, has been formally opened.

Malignant disease is responsible for most sudden, unexpected hemorrhages from the urethra, but there are cases of genito-urinary tuberculosis which may manifest this symptom.

A hospital conference has been organized in New York City for the purpose of preventing extravagance and waste in hospital maintenance; such an exchange of opinion should result in large hospital economies.

The Walter Reed United States Army General Hospital, to be erected in the District of Columbia, is to be named in honor of the great physician who demonstrated the transmission of yellow fever by mosquitoes.

Hodgkins' Disease is diagnosed with certainty only by the removal and microscopic study of a diseased gland. Some cases are characterized by a typically relapsing fever. Glandular tuberculosis, declares Ruffin (*American Jour. Med. Sc.*, April, '06), may be excluded by the tuberculin test.

Cigarette smoking is to be suppressed by act of Parliament among English children under sixteen; any such child found smoking any kind of tobacco is to be held liable to conviction and punishment. In one of our middle-western states no one, adult or child, may smoke a cigarette, under penalty of the law.

A curious vaccination accident is related by *Jour. A. M. A.* An English physician, about to vaccinate an infant, was struck in the eye by a minute fragment of glass from the breaking of a vaccine tube. Though he washed his eye at once, the virus "took" and he had a vaccine pustule, presumably on the conjunctiva; his eyesight has fortunately not been affected.

The taste for alcoholic drinks, states Dr. Wilson, the junior surgeon on the *Discovery* during Captain Clark's Antarctic expedition, dropped suddenly when he and his colleagues entered the ice region, and the disinclination increased as time went on. It seems, moreover, that those who, while in the Arctic regions persist in the use of alcohol do not withstand privation nearly as well as those who are abstinent in this regard.

The physician, Dr. Charles H. Lewis well observes (*Jour. Mich. State Med.*), is besides his functions to treat the sick, a natural philosopher or scientist. His title is derived from physics, the synonym of natural philosophy. And by the title of doctor he is also teacher. In his dual capacity the administration of remedies falls far short of measuring the field of his activities. His advice and counsel are often the most needed and most useful part of his service, and it is his duty to dispense knowledge as well as medicine.

The theatre doctor seems to be quite an institution in Paris, where he is called the "Medecin de service." A seat is reserved for him on the aisle, near the first row, his name is inscribed on a list, and he takes his turn to be present in case of accident or sickness either in the auditorium or on the stage. It is related that a physician played truant one evening, giving his seat to a lay friend; on this occasion, an actress becoming ill, the latter was summoned. Not wishing to embarrass the absentee he treated the case as best he could, prescribing "aqua destillata." The lady fortunately recovered.

Oysters, when removed from saline to fresh waters, states Dr. W. K. Brooks, of Johns Hopkins, absorb water quickly and become "fat"; but the fatness is nothing but water. The fattening is usually carried on in the mouths of rivers, which are always near towns and are polluted by sewage. "Fattened" oysters should not be eaten raw; to such oysters have the outbreaks of typhoid due to the bivalve been traced. All the fresh water that a "fattened" oyster has absorbed is at once abstracted by cooking. Those who consume such oysters are really drinking filthy water from the harbors of cities at the price of good oysters.

Thirty-three colored physicians were recently graduated from the Leonard School of Shaw University, at Raleigh, N. C.; the ten professors in this excellent institution are prominent white physicians. The course of study extends over four years. Besides Leonard there are schools devoted to the same purpose in Washington, Knoxville, Nashville and New Orleans; and these and similar institutions have graduated some fifteen hundred colored men now practicing in the United States. There were also thirteen graduates in Pharmacy from Shaw University. In many Southern cities there are first-class drug stores owned and operated entirely by colored men.

"Case" and "Patient" are terms well differentiated by the *Milwaukee Medical Journal.* We speak of a beautiful case of smallpox or of typhoid, examining all its manifestations with the keen enjoyment of a botanist studying a new plant. The patient does not enjoy these manifestations at all. He demands attention, his sufferings are very real to him, and he does not appreciate the privilege of being the medium for the bacterium growth in which we are so much interested. It may be that while one physician is absorbed in the scientific aspects of the case, another having less of scientific attainments and more of humanity, will give the patient what he most needs —sympathy, courage and relief.

A "nurses' kindergarten" has recently been opened in connection with the Bellevue Training School in New York City. This, and the Probationers' Home at Johns Hopkins are the only institutions of their kind in the country. Only the elements of a nurse's profession are taught, such as cooking, the care of the sick and the feeding of patients. In the primary school in New York there are now eighteen probationers, averaging in age 27 years. The object of its founders was to relieve the Training School of its primary classes, and to provide room for a larger number of those who had made a preparatory study of nursing. The Bellevue Training School has always received more applicants than it could accommodate.

THE SOCIAL EVIL.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

IT IS forcibly up to us, and we must claim the office fearlessly, to talk plainly about it as doctors. If we cannot do this, in the seamed face of erring and injured humanity, we are obsequious pretenders, cowardly skulkers in the great calling that has been appointed as professional adjuster of the physical and psychical conditions of society. If we are trustful of human nature we dare not assume to be better than God's Book, the Bible. To start the present problem, who of us can get away from the passional and generative facts of our existence and birth? Are we not individually the product of sexual desire and activity? The natural impetus to sexual activity is not of the human will, but of the dominant function of life itself. The natural appetite for sexual consolement is perpetuated unabated, from generation to generation, by the special impulse of the sexual act by which and through which is generated succession of individual life in normal natures.

Since the Biblical Eve, in the emotionless garden of Eden, experienced her initial and personally developed promptings to taste the luscious fruit of the tree of knowledge, whereby Adam was to be inducted to the priesthood of generative pleasure and functions in sexual relations, the inextinguishable flame and inexhaustible fires of human desire in sex-love have, by passional yet normal repetition, kept themselves ardently alive from the initial spark, and will continue to do so till the end of time. It was by wisdom of the Almighty will that planned humanity male and female for each other.

We are compelled to remove our hats and bow bare-browed before the dignity of man's history. If the story of Adam and Eve, as narrated in Genesis, is literal fact and not symbolic tradition of the starting of the human race on earth?—if it is the naked fact that there was then but one man and was but one woman in existence?—surely the sexual relations of their progeny must have been peculiarly intimate and mixed for several generations of procreative practice. Would not this process of progeniture or begetment confront us squarely with the potential origin of the world's dominant penchant for sexual license, that neither prohibitive edict nor regenerative Gospel has effectively repressed nor suppressed, because of the ineradicable instincts of nature that held precedence in the potency of root and bloom of perpetuity? Let our austere calculating cynics begin to count and measure family acorns. Is it not true that every child that is conceived and born is the direct fruit of human sexual passion at the instant of the sexual act by which, and by which only, said child received existence and sexual impress? If sex passion made the child, sex passion is essentially that child's life-inheritance, the original law of its existence which a few years of bud development will evolve into unmeasured, possibly ungoverned and even ungovernable activity. All the sublime goodness and righteousness of God have never stamped out nor erased the permanence and potency of the sexual desire implanted in humanity as the means of continuing the creative act that made man and woman.

Despite the world's and the church's surface inhibition, we do not propose to wince or faint in the face of this great practical problem. Is sexual passion evil? Who made it so? Is man and woman to stifle the impulses that call for sexual consolation? Marriage, it is true, has been ordained for sex-love; but how many women are not favored with appropriate opportunities for marriage? How many men do not trample down the sexual impulse of their being until marriage relations can be happily and prosperously assumed? Marriage itself has become a serious responsibility to the conscientious man and woman. If lightly entered into or trifled with, its bonds strangle the dearest gods of love with merciless succession. The rites of marriage cannot graft to themselves all the monopoly of sexual gratification, abused and lustful as it too often proves because of the license of rites. It is therefore neither just nor charitable nor Christian to offensively censure as bad, as degraded, indecent or wicked the child, the boy or girl, the man or the woman who experience the sexual sense, the need of relief to the appetite which was implanted by the only act of nature that transmitted to them the initial element and potencies of life. The sexual "sinner"! How many make-believes have trained their eyes to roll skyward, have sharpened their tongues to tones of scorn and scandal, merely because their shift of Christian charity is too short and too thin to even clothe their assumption of superior purity —superior purity?—which individually often spells circumstantial differences in social influences, opportunities of social preference, escape from compromising embarrassments that grow thick hedges of environment and determine turning points in the pathways of life! Or, as Bishop McVickar has so aptly put it: "And yet, after all, their sin is only the ripe product and outcome of social condition, the growth and fruit of noisome, sodden soil, with its feverish exhalations, its lowered ideals. How can society deal judicially with these offenders, when the hand that should hold the scales is either palsied with self-consciousness or shaken with a fit of unreasoning rage?"

The world has in it its share of errors. With the inexorable sex penchant planted into humanity from the beginning, we need feel no surprise that in the earlier ages the creative sex idea was elevated to the reverence of sex worship in various ways, and that naturally, in unbalanced natures, sex mania has disfigured the fair features of sex manifestations in the world. It is amply true, even now, that as man clings to love of life, he clings to his province of sexual potency, and many a suicide results from the discovery that virility has been dethroned by the stigma of impotence. With the advance of "society" in civilization, promiscuous indulgence of the sexual appetite is denominated the "social evil"—social sin—one of the world's seven great sins—ONE! In the primitive days, when womanhood was hardy and naturally developed, before "society" began to set up so many artificial stunts, women coveted the privilege, the function and honor of motherhood, yearned and prayed for children, and had them without reserve. By Scriptural testimony, in the earlier Biblical days men and women sought each other without much formal system of social regulation. Women prized the opportunity and the ability to procreate as the special favor of God. Men gathered to themselves wives and concubines to the limit of choice or supply. In that tragic travesty about partiality between acceptance of fruit of the ground and mutton of the field, as recorded in Genesis IVth, it is more than probable that Cain murdered his brother Abel in a fit of jealous rage for sexual favor

because there was not a pretty or desirable woman for each. It may be noticed that Cain pleaded his own case, took his medicine in punishment for his hard-hearted crime—but then went in unto his wife, in the land of Nod, on the East of Eden, and she bare Enoch, who builded a city. Furthermore, in primitive days, women sought sexual favor under various pretexts, according to inclination, as sampled in the graphic history of Lot. Lot's daughters took sexual refuge with their salt-made widowed father in the mountain cave, during his amorous dreams of intoxication induced by giving him wine for the purpose, and thus by their father each daughter bare a son of eminent career. Childless Ruth, the youthful and handsome widow endowed with the womanly gift of mother Eve, went gleaning for barley in the fields of wealthy Boaz in whose sight she would find grace. She adroitly pursued Boaz to his threshing floor at night, and lay by his doubtless sensitive uncovered feet while he slept until he would wake—which he did at midnight—with the natural result that old Boaz took the animating Ruth for wife, and she bare a son of great renown, the father of Jesse, the father of David. Sarah, who was Abraham's half sister, and who supposed herself absolutely barren, appealed to Abraham to cohabit with her youthful Egyptian handmaid in order that Sarah and Abraham might obtain children by their maid. Old as he was, Abraham did not hesitate to hearken to Sarah's proposition, and Hagar the maid conceived. What followed? Hagar's youthful ardor evidently revived aged Abraham's virility and Sarah herself then conceived and bare Isaac, the father of many generations.

There is no element for levity in face of such historic cases. Society has builded many unsteady scaffolds since from which painful falls are numerous in view of the sexual tenacity of the social evil. Under the unrest of pervading sentiment few wives would be as generously and reasonably disposed as was sainted Sarah. Many childless wives pull the other woman's hair and enviously rip character up the back in divorce courts and suits for money graft, rather than adopt the gentle diplomacy of loving Rachel toward her chosen spouse Jacob—for family sake. The present writer is now in his forty-seventh year of family practice in medicine, during which he has seen and learned volumes of human history. In all he knows of but one actual case of wifely magnanimity that closely corresponds with the wifely and maternal dignity of Rachel's position toward Jacob. On contrary many peaceful family unions have been rudely shaken and broken by the matured wife's realization that her menopause has removed from her experience enjoyable acceptance of the usual frequency of the sexual act; also by the husband's chagrin because the sexual attraction of the wife has cooled and vanished to the degree that his approaches are not only undesired, but are ineffective, perhaps even repulsed. Man's natural appetite, prompting and enduring after the woman has become sexually "dead to the world," opens hundreds of doors to the prevalent form of social evil, because men of riper years dispose themselves to then seek abroad, among younger and more ardent women, the stimulus and consolation that they grievously miss in their home life.

Another fruitful concession toward the support of the social evil, like worm-bitten fruit, falls from the aversion and objection characteristic of many wives to the situation of pregnancy and the toilsome care of rearing children. "My wife strenuously dreads and objects to becoming in the family way, so to spare her all that I can, at times I must go outside" is repeatedly confessed by husbands who apprehend that possibly disease has been contracted by their ventures. Many such do not mean it for libertine violations of civil sexual codes, but they experience certain physiological necessities, as they sexually interpret them; they sensitively recoil from thought or practice of marriage coercion; and the alternative of gratification is conveniently at hand if they will pay for the hazardous accommodation. I have seen most intense anxiety arise from this situation on the part of men who, at heart, I knew honored their wives as sexual mates, but to spare whom took risks with promiscuous women because of the readiness and welcome that awaited the male patron who had a money compensation to bestow. Another incidental feeder of the social evil is the constitutional delicacy and sexual coldness or indifference discovered in many wives after marriage ceremonies had mortgaged a physiological defalcation. To be chosen and accepted to a feast that proves insipid and disappointing in every experience, eventually suggests trying a change of boarding table. There should be munificently endowed a college for the preparation of candidates for successful marriage. Esteem and honor for high types of qualification would easily outwear and outlive the connubial fictions that join hands in civil ceremony, but soon prove that theirs is another mismatch and not a mating devised by Heaven. Too many women are not sexually developed, enter marriage ignorant of its physical requirements, and should never have been married. Too many young women marry who are merely fond of the infatuation of an attractive beau, but do not need a husband—who is prone to become disenchanted after getting past the title page of the romance. Not a few men of ardent temperament and potent physique absorb disquieting emotions from disappointment evolved by their connubial relations. In their conscientious sensitiveness and regard for the weaker one, they would even appeal to God to crush the overbearing forces rousing their sexual propensity—but God does not respond in effect; the vital flame glows on in spite of will or wish, till the moral battle line is relaxed by the fascination of more ample welcome with its spontaneous surprise at the natural difference of endowments in women as well as in men. Even those who shudder with contempt at word or thought of the social evil or any house frequented for immoral purpose, should be chary of harshness of judgment in private matters were conditions are not equally comprehended because not personally experienced. It is always easier to condemn than to cure.

Christ introduced the reform dispensation. He set the example of charitable forbearance as proven by His kindliness toward Mary Magdalene who Luke records was known as a woman sinner; again proven by that remarkable interview with the woman of Samaria at the well, who had lived with five men, and the sixth at least not her husband; and proven yet again emphatically in regard to the woman taken in adultery—"in the very act"—where He wrote forgiveness with His finger on the ground, and facing her accusers said: "He that is without sin among you, let him first

cast a stone at her."

Another prevalent inducement to the social evil is woman's coquettish fondness for masculine attentions, for fashionable dress that rivals the display of the monied class, for avoidance of the drudgery of manual toil. When a certain class of women and girls learn that the sexual appetite in men impels men to resort to nature's provision in the female sex at any cost, that cost is temptingly exacted at the price of proffered opportunity in the unhesitating financial deal of sexual exchange outside of marriage relations. These women as a class may personally realize but little satisfaction aside from the depraved "business" income of conducting the trade of the professional courtesan to obtain a soft-handed livelihood and possibly its show of bejeweled emoluments. Another prolific promoter of the social evil is a turgid imagination, eagerness for the excitements of romantic adventure into the sphere of erotic mysteries, where license can be indulged without the necessity of fear or restraint—until overtaken by the disaster of disease, which, in the self-hardened woman is often endured with little shame because she believes it no or little worse than the common luck of her accommodating sex. The male youth or the man will wince with chagrin and wilt with abasement under the lash of his indecent suffering if acute, while the woman who has ventured upon the thorny course of the harlot will passively abide her time for relief and the continuance of her degeneracy. The dizzy grasp after mere change that liberates from the monotony of home authority, of domestic work, of shop toil has turned the heads of many hundreds of girls who rushed into the supposed glamour of promiscuous habits, whereby men should be indulged at the graded market price of womanly dishonor, and the degraded winnings divided with the unscrupulous hard-fisted boarding mistress. Furthermore, a reeling quickstep through the open gates to the social evil is spurred by the sensual familiarities of the sexes formulated and practiced by rote in dancing-parlors, schools, halls, towed along into late night hours by the suggestive motion-rhythms of beguiling music that rocks mutual desire to the vortex of acute risque, if not also to the kept-house of actual assignation.

Also there stalk into the haunts of the social evil the concourse of subjects of poverty and need, of pressing want for comforts to appease the longings of civilized existence, because of which women resort to the convenience of sexual offering and service in order to win bread and clothing and fuel and roof. We all know that it is more comfortable to live than to starve! Society may be callous to the wants of the underpaid and underfed work girl and woman, but when the toil of the hands falls insufficiently recompensed and the gnaw of hardening circumstances deepen the bite month by month, the swinging doors of sexual prostitution yet beckon with invitations to try a probably softer lot, short as it may prove. It is largely the world's fault, the fault of encroaching civilization, the fault of modernized self-satisfied Christian respectability with its possession of worldly advantages that cause poverty to shove underpaid sewing girls and women into the heart-bruised avenues of sexual shame and barter for the consolation of bread and the decoration of a scarlet wrapper. Scandalous as it reads, considering the mass of unprovided-for women and girls, better would seem the moral benevolence of some form of poligamy acceptable to the wealthy and well-to-do class, whereby a mutual and obligated division of this world's comforts—better it would seem in the interests of morals and protection from disease than is the heartless forcing of unnumbered conscientious female recruits to the hades of disgrace and remorse on earth! All are not equally strong in self-defense. But the writer knows personally a family consisting of a widowed mother and four interesting adult daughters of exceptional refinement and artistic gifts, who bravely and nobly fight the battle of womanly purity by industriously working together from morning till night, and more usually then from darkness till near midnight hour, every week-day, at making silk neckwear for their employing wholesale manufacturing firm. This they perform at certain seasons at exhausting blood-money rates per dozen. The task must be steadily performed to satisfy the monthly calls for house rent and to provide for their other plain necessities. Why are they and many others compelled to put in these tedious long hours for mere subsistence? Because of the rapacity for the graft of mercantile monopoly that proposes to undersell competing houses that are financially weaker, and thus to drive the latter from the field of trade. Why? Because millionaire merchant princes and mercantile corporations, who can make their own prices for supply stock and monopolize trade profits, "PLACE" their heavy orders with manufacturers at compelling rates which impose nerve-exhausting toil on the hands and eyes and blood-wear of women who MUST struggle for simple livelihood, in order to produce the wares demanded at appalling low price by manufacturers of women's handiwork, even though these women are half crushed to earth daily if virtuous! Who can wonder that in so many cases the poor sewing girl, the interesting store woman, falter in their weariness, and accept the income of temptation as the more providential alternative, by joining the sought-for and better favored recruits of the demi-monde? Which one of us can willingly press upon their throbbings brows the thorns of censorious detraction, or write them down to the blackened level of social perdition? As God lives, and is God, accepting Jesus Christ as my example, I hope to never do so. If we cannot help these harassed women into more comfortable life, let us remain silent in regard to them and mind our own business in gratitude for our happier lot!

Anent the discomfiture of women who seek bread by the pleasure of men outside of marriage, in conformity with the moral sentiment of conservative religious attitude, and of the applauded spurt of scene-shifting political "reformers," in Philadelphia, there has been started an insistent clamor to tear out something special for diplomatic buncombe in the social interests of the city. There has therefore been inaugurated a hostile repetition of midnight raids by the police upon houses of ill repute. These heroic onsets are planned and conducted by schedule information furnished by clandestine spies and cooperative officials who are spasmodically impelled by the steam of high pressure sense of popular duty in response to claims for service and salary. The church authorities warmly applaud the name of one eagle-eyed agent, of the persecuting or prosecuting machinery, but at same time they do not offer or furnish these hundreds of unfortunate erring women any substantial oportunity of social sal-

vation by giving them honest and more honorable employment and life-supporting compensation. They are willing to have these women hounded to jail instead—they would self-righteously prefer to crush the female sexual refugee on earth completely. On a rounding-up night campaign, hundreds of girls and women are hauled unexpectedly into the police dragnet. The last vestige of their self-respect must be thus openly undone and lost, the last chance to get back into the avenues of correct life is officially slammed into their faces with bars of iron. No champion of the Gospel of sympathy and charity which leadeth the erring heavenward intervenes with the life-line of rescue after the pattern of Christ when the censorious scribes and Pharisees dragged before Him for judgment the erring woman. In the zeal for a puff of surface "reform" it is forgotten that these "fallen" girls and women have all been nursed at a mother's bosom, all have suffered some ignominious cross of life, all are in bonds of betrayed trust, of repressive circumstances, of mental delusion, of physiological tension, of constitutional degeneracy that have singly or by group perverted and deformed their natures. Furthermore, their perceptions and senses have possibly been submerged by the misdirections of drink, paid for by the passion-offering of men of respected popular positions, and whereby responsive womanhod so resistlessly loses grasp of normal balance. "But why don't such women resist?" cry the Pharisees. Did Eve resist? They also are daughters of Eve.

In this cursory glance at the social evil I have small occasion to seriously include the capriciously vile—the shameless prostitute to the natural sphere born through drunken or degenerate parentage—the relatively irresponsible physiological pervert whose situation needs the discipline of an industrial asylum and judicious taskmaster as a training school to more decent rectitude in civilized society. Possibly these conservative methods should be supplemental to the preliminary calming corrective of a spaying operation by skilful surgeons as special protective against the early debauching of male youths who are sensitively liable to easily fall astray if prompted by the sensual suggestion or erotic solicitation of the froward girl or woman. The distempered world has in it girls in their teens, and young or older women of experienced maturity, possessed by impulses of abnormally lascivious temperament or penchant; and though they have not drifted into houses of promiscuous resort, are nevertheless ardently on occasion alert for opportunity to induct prurient youths, even mere lads, into sexual familiarities with women. However impelled, this wayward feminine element, as a precocious social menace, should not be permitted physical chance because of excess of turgid passion to "spoil" and deflex the moral bias of incoming manhood. If the girl or woman "can't help it," as I have repeatedly been told by them, "without resort to the substitute of self-satisfaction"—I believe it wise to legally devise unsexing methods for reducing their abnormal sexual furor. In several instances the writer has been applied to by women without husbands for medicines to prevent their sleeping hours from being harassed with exhausting orgasms of erotic dreams—every night. Half of the world does not know the living condition of the other half. The caustic criticisms and denunciations of the former half must be like the brassy blare of ignorant presumption in the hearing of the God of all humanity alike.

There are likewise insatiable youths and men egregiously devoid of ethical and honorable sexual ideals, and who carnally cruise with goading satyriastic propensity after any attractive girl or woman that they fancy may be made an available compromise for sexual use. Among this debased class of males are to be found those of brute instincts, who with venereal disease even crave virgin contact as a reputed or supposed remedy for disgusting sexual contaminations. Hence these libidinous degenerates, these lecherous prowlers against female virtue, seek to trap and ruin young girls by cunning wiles, by violent abuse of ordained female function, even by gross assault of shocking rape as convincing proof of erotic mania. Such monstrous perversion is not limited to any particular nationality, or color, whether white or yellow or black. Sexual crime has no set color of skin, but has been smudged with innate perversity of its subject which moral teaching and civil ethics and the law's usual penalties fail to control or to erase. Some years ago I was consulted by a young man not out of his "teens" for a moderate gonorrhœa. He openly stated that his main pleasure in life was his ambition to "be the first one" or seduce every girl he met for whom he experienced the fancy. After obtaining an introduction his villainous purpose began. Happening to be good looking, he had the oil of Satan's tongue to smooth his words and the fluency of presumption to cleave his way. Thus equipped, he proposed to storm the castle of the young woman's repugnance with abating difficulty. He represented an existing class of freebooter debauchers of young womanhood on sexual lines. He claimed that goodness in a girl made no difference. He was himself a son of religious, church-going parents whom I knew personally. I hold that decent society deserves tenfold safer exemption from such prowling libertines, whether responsible or irresponsible by reason of abnormal propensities. Ten years ago I advocated castration of such males as the reasonable corrective. Considering the increase of libidinous crimes against girls and women and even boys, it is my opinion that nothing would so enhance respect for clean society and its safety from poaching and brutish despoilers as would legalized emasculation of degenerate passion by surgical castration, followed by at least one year's discipline at hard labor to displace tendency to erotic contemplation. Misplaced sentiment has done worse than run to seed when it would not judicially arrest outrageous error, rather than to await its explosion into brutal assault, even awful murder.

A notable flush of psychological exegeses has latterly come into print relative to sexual inverts. The sexual inverts and perverts are not a practically important social asset to the world's welfare, if the world is ever to become better. Mystic haunts for orgy practices by sexual perverts, and which spread by imitation, are fungus offshoots of the social evil. The crops of sexual freaks should be timely curtailed in the United States to allow community to grow normal. The world must grow normal psychically and physiologically if it ever grows good. Religious teaching never for long overbears sexual penchant. The former filters inward from precept like rays of light and dews of moisture; the latter surges outward like the native fires of indi-

vidual life itself. The office of judicious surgery should be legally authorized and invoked to arrest the spread of abnormal or pervert conditions and the reduction of sexual crimes. About ten years ago the writer was seriously informed by one of his well-to-do lady patrons how she had been most ardently and persuasively wooed, with insistent vulgar unnatural intent, by a woman who declined to live with a husband, and with whom my patron was thrown in contact as an assistant in a fashionable Turkish bath palace in this city. This assistant professed to be unresistingly smitten with the physique of my patron, and urgently craved permission to administer the baths at my patron's home instead; but when the real intent was demonstrated, the pervert was sent from the house and my patron also ceased her visits to the Turkish baths. Nevertheless, a female pervert of this type, with bath-house opportunities, could readily insinuate her passional indulgences into many acceptances among other women and even surprised girls, and, because of the absence of all liability to pregnancy, the purlieus of moral corruption be spread endlessly. Again, it is a fact well authenticated to the writer some years ago that there were special houses of resort supplied with female perverts only, who furnished the unnatural use to male perverts and other men if aceptable, but served no man by any other way. If these degenerates were only myths of fable, they would be relatively harmless; but how long would it take one expert popular Siren to induct forty youths and men into gross depravity? The diseases of these perverts are the most disgusting that disgrace any hospital—rather than which the obliteration of the distorting propensity by the surgeon's knife would prove a saving grace in practical reform. The sexual pervert is a mental pervert, whether male or female, whose orgies appal civil comprehension, and, compared with which, the ordinary natural form of prostitution or social evil wins much in general respect. Idiots can never represent the average sense of humanity—sexual idiots need the corrective sexual operations, and vegetable diet, and regulated industry to disarm the menace of progressive abnormal perversion.

This apparent digression is not without its bearing on the social evil. It applies rather to the aberrations of sexual promptings and pursuit. But while the marked aberrations may be reduced, it will steadfastly be borne in mind that the institution of promiscuous sexual commerce has had existence and recognition since the exit from the garden of Eden, and will never be eliminated while humanity exists on this earth. Judging from the long past, human nature can never absolutely divorce itself from its created and its creative instincts for sexual pleasure. On its sidetrack from connubial relations with their frequent strivings for financial support, the social evil bears the disfigured features of a money deal of sexual exchange, unhappy and unfortunate as are its general conditions. As to thousands of women, the social evil alternative intercepts the natural impetus of young men to marriage, whereby the concourse of bread winning single women might be provided with homes with their husbands, and the conditions of sex-want more naturally and safely equalized. Men are learning in increased proportion to shirk the responsibilities of home-making and home-keeping for themselves; and woman is proportionally turned to her chances of laboriously earning bread and supplying roof for herself so long as she can, unless she yields to the alluring dazzle of "the kept woman" or the dangers of sexual patronage. The social evil is maintained at immense expense. On its higher lines it exists largely by the financial support of local politicians who grow corrupt with office positions; also by the patronage of appointees with short hours and long leisure, and who for little service draw liberal salaries from the city treasury; again by men from lesser towns and the country who bring with them better money than discretion when visiting great centres always stocked and prepared for sexual diversions—men who too often return to their homes with a worse elephant on their hands than was supposed to entertain them in their temporary pleasure-seeking explorations. The elasticity with which relatively reputable men from country districts part with money on occasion for novelties of sexual ventures, is equalled only by the mercantile facility with which venereal diseases are exchanged and imported from the brothel broadcast throughout the land among innocent women already wives or who may presently become so to then gather the rust of evil for life. The professional social evil is an alluring though deceptive rival to the home. The impression is habitually indulged by women of austere discernment and lily-white sentiment that any woman who belongs to the demi-monde is essentially a low strumpet by nature and choice, fit only to be shunned and condemned. But there is no scarcity of genteel women of tidy address, women of education and refined instincts stranded upon the emergency shoals of courtesan experience, who are well equipped to be on safeguard in the presence of gentlemen and respectable strangers. Many a careless wife and querulous sister at home may drop into shadow by comparison Then there has prevailed an entertaining custom adopted by representatives of wholesale businesses in cities who take almost hourly charge of purchasing patrons from the country during intervals between business hours when buying the season's stock; and from theatre or opera at night to an upper-ten demimonde parlor is no exceptional variety in the schedule of business hospitality. Between a bagnio beauty in fetching attire, and with pianoforte accompaniment of a transient hour, and the commonplace domestic home companionship of calico and dishpan there will recur thoughts of repeated contrasts. Though he may escape the discomforts of disease, that man's nature has waked to insurgent disquiets when memory regilds the devouring charm of a misspent hour, but which disconcerted his remaining years of life. One hour with an accomplished courtesan made her the rival of wife or mother or sister ever afterward—so much the greater pity. The woman sought only patronage and cash or income—the man witlessly sought the diversion or novelty of change, but lost thereby the contentment of his life for reasons that he could never entirely explain to himself. Neither he, nor the woman he purchased for a moment, knew the happiness that the embrace of pure and undefiled affection spontaneously affords.

The numbers of female social votaries are great. Estimated statistics can but approximate the facts. In "Hardships of Social Vice," written for THE MEDICAL TIMES of December, 1905, I purposely avoided the use of home statistics to any extent. For the purpose

of illustration I chose to refer to a published account of the number of girls and women engaged in prostitution in England or the United Kingdom, nearly fifty years ago, as fifty thousand prostitutes, who, to live, must have sexual congress at least once every twenty-four hours for compensation. It was the object of that paper to deal with conditions mainly. But since its publication I have received an interesting letter on the subject from an intelligent literary gentleman who has lately been abroad, and not with his eyes closed. I quote a few lines of his valued communication as follows: "As a one-time denizen of some of the largest of the world's cities, including Calcutta and some others in the Orient, I do not think you have exaggerated in the least the gravity of the conditions. * * * I was informed, by no less an authority than Dr. Allingham, of St. Mark's Hospital, that when in London in 1885, there were no less than the total you mention for the whole United Kingdom of prostitutes upon the streets of the British metropolis. I can readily believe this to be the fact, judging by the swarms of these poor creatures encountered in a nightly walk from Temple Bar to Charing Cross station." Fifty thousand in London alone in 1885! And the half of the street-walkers diseased! One dreads to begin to carry out the parallels to our American cities which have been largely stocked with fast women whose instincts of loose habits have been transported by immigration from England, Ireland, Russia and various other sources of human want and sexual barter! But having reached the limits of the present paper, I must defer continuance of the problem to a future study.

1726 North Twenty-second Street.

CONSTIPATION AND DIARRHŒA CLINICALLY CONSIDERED.

BY H. H. HAYWARD, M.D.

OF recent years there has been recognized a type of disease where the intestine is in a condition of spastic contraction; according to Albu, 25 per cent. of the cases of constipation in women belong to this variety. Treatment of constipation due to spasm is naturally very different from that of constipation dependent on atony, but unfortunately the diagnosis is often difficult or impossible, the patients being usually neurasthenic or hysterical individuals, exhibiting spasm in other regions of the body, such as cardiospasm or pharyngeal spasm. This intestinal spasm is not continuous and gives rise to sensations that may range merely from a feeling of discomfort to positive colics; the contracted intestinal knots may be palpated as tender sausage shaped masses, while rectal examination may reveal a spastic condition of the sphincters, making the feces sometimes show the characteristic ribbon or lead pencil shape. In these cases the avoidance of all irritation of the intestine, especially massage, and the use of soothing and relaxing measures, such as warm baths, hot applications to the abdomen, warm oil enemas, belladonna, non-irritating, gruel-like diet, and rectal bougies are indicated.

The use of oil injections is one of the most useful procedures for the treatment of mucomembranous colitis and constipation; but the cases must be selected and injections given properly. The routine injection of olive oil in all cases of constipation will prove disappointing, but gratifying results can be obtained in cases depending on chronic colitis; constipation associated with spasm of the bowel, such as is so frequently found in neurasthenia, as mentioned above, and in atony of the intestines, used conjointly with electrical treatment. Inject from 3 to 10 ounces of warm olive oil at bedtime; if retained during the night it usually results in an evacuation after breakfast. Introduce the oil slowly so as not to create an immediate desire to evacuate. Hershell devised an apparatus consisting of a glass funnel provided with a metal loop, by which it can be suspended at a convenient height above the bed on which the patient lies while taking the injection, fitted with about 27 inches of rubber tube of large caliber and terminates in a nozzle of special construction. This nozzle has a large bore to allow the ready passage of the oil, and has the end of the bore well rounded so that even when roughly and unskilfully used it is impossible to injure the rectal mucous membrane, and from its shape it is self-retaining. The flow of oil is controlled by a spring clip, so contrived that when opened it will remain so until a catch is released. The measured quantity of oil is heated by standing the beaker containing it in a basin of hot water; commence with five or six ounces and reduce the dose daily until reaching the smallest amount which will produce an action of the bowels. Use the oil on alternate nights, the intervals being lengthened gradually until the oil is no longer needed.

An imperfect evacuation of the large bowel is generally associated with symptoms comprehended under the term "constipation"; but while the large bowel up to the hepatic flexure or even to the splenic flexure may be constantly loaded, yet the patient obtains from the overflow a daily movement; consequently he makes no complaint of constipation. The large intestine, whose vitality has been depreciated, both by local inflammatory changes and by the general loss of tone, is thus rendered liable to some specific infection; ulcerative, membranous or other forms of colitis may develop in consequence, frequently dating from a very early period, when, owing to the unsuitable feeding of a child, the intestines are distended with gas. The cæcum and ascending colon appear to suffer most severely, for this portion of the bowel is hung up at the hepatic flexure, which is rendered more acute by the distension and consequent elongation of the transverse colon in a downward direction; this distension, by dragging on the band supporting the splenic flexure, renders it difficult for the contents of the transverse colon to pass into the descending colon; the large bowel becomes more or less inflamed, even producing a distinct peritonitis, as shown by effusion. The inflammation of the cæcum and ascending colon produces an adhesive process between the outer wall of the bowel and the peritoneum, which helps to support the increasing weight of this portion of the bowel and to some extent oppose its distension and downward displacement; similar changes take place at the splenic flexure, these adhesions develop into distinct mesenteries and strong bands, and the bowel is less able to perform its functions; the intestines become bound down; the sigmoid is so contracted that it ceases to

be a loop and forms a straight conduit, the presence of the inflamed bowel in the true pelvis interferes with the functions of the ovary and the fallopian tube, and in this way constipation plays an important part in sterility among women. The stomach's functions are finally interfered with and the kidneys become mobile.

In studying oil enemata in chronic constipation, Fleiner makes two varieties of chronic constipation, the atonic and the spasmodic, which are sometimes found combined. The lower half of the large intestine is then in a state of spasmodic contraction, while the upper half is atonic and distended with gases and fæces. The distinction between atonic and spasmodic constipation is of importance, for electricity, massage, and laxatives, which are efficacious against the former, not only fail in the latter, but are harmful, for the spasm of the intestinal wall is increased by the irritation produced. In some cases the administration of narcotics, particularly belladonna and hyoscyamus, are excellent, but these means often prove inefficient, while olive oil injections constitute a ready and safe way of relieving even the most obstinate cases of spasmodic constipation, as the oil exerts a stimulating and soothing action on the intestines. It can be tried in atonic constipation, but as this is relieved by other means of a still simpler kind, the injections are especially indicated in cases of mixed and spasmodic constipation; Fleiner employs a cannula with a bulbous end, similar in appearance to an ordinary vaginal tube, and large enough to allow of the easy discharge of the oil; this is connected by means of a flexible tube with a syringe containing about 15 ounces of pure oil. The patient is made to lie on his back with the pelvis elevated, the crannula is introduced, and the oil injected slowly; the operation usually takes from fifteen to twenty minutes. The cannula need not be passed very high up the rectum, for, by placing the patient in the position above described, intestinal pressure is lowered and the oil is aspirated by the intestines. Done carefully, for some time after the injection the oil gives rise to no sensation, but after a while the patient feels a desire to pass wind, and there is no pain if pure oil is used. The injections are repeated daily until the intestine is cleared of its contents, two or three enemas being usually sufficient for that purpose. When this has been done, the effect is kept up by means of an injection of about 10 ounces of oil at intervals of a few days. Remember, that when the intestine is very much distended with fæces, the first injection may not succeed in moving the bowels; here an enema of water should be given a few hours after the oil injection. Nothing but pure oil of good quality should be used, free from all rancid and acid principles which give rise to colic. After each operation the tube and cannula should be cleaned by washing first with alcohol and then in water. Not only in chronic constipation, which is so frequently met with in neurotic subjects, in anæmia, and gynæcological affections, oil enemata are also very useful, according to Fleiner, in the treatment of membranous colitis, in appendicitis, rectal inflammation, and intestinal disturbances following stomachic trouble.

In habitual constipation of nervous origin, Dubois recomends an exceedingly simple method, which has been systematically and successfully practised by him. No medicaments are prescribed, but the following instructions given to the patient: (1) A regular rising from bed in the morning at a fixed hour (such as 7 o'clock), to secure that stimulation of peristalsis induced by awaking which should occur always at the same time. (2) Taking a tumblerful of cold water (or a quassia infusion, if the patient, after all, insists to "have some medicine") immediately after getting up ("a second stimulation of peristalis"). (3) Taking breakfast (including Graham bread, and butter) always at the same fixed hour, 7.30 a. m. ("a third stimulation of peristalsis"). (4) Daily making an attempt at defæcation at the same hour, 8 a. m. ("a fourth stimulation of peristalsis"). (5) Taking abundant amounts of food (especially of vegetables and fruits) at each meal. Such "anti-constipation code" should be given to the patient not only viva voce, but on paper as well, and be accompanied by the practitioner's "absolute promise of success."

In atonic conditions of the intestine, Peterson recommends pouring water over the abdomen while the patient is sitting in a tub containing about six inches of water at a low temperature; this procedure is a powerful aid to peristalsis.

The use of the continuous current has been advised by Shoemaker; the intrarectal rheophore, attached to the negative pole, being introduced within the bowel, while the sponge covered rheophore representing the positive pole is placed upon the perinæum, thus the constant current passes directly through the prostate gland. The patient is able to exactly graduate the intensity of the current by means of more or less pressure upon the rheophore; the strength of the current should be about that of 1 milliampere, rather less than more, and the patient is at first unconscious of its passage. Gradually he notices that the rectal electrode has become heated to a point at which it cannot be comfortably borne. The slow, steady increase in the strength of the current, sometimes from 1 to 10 or 12 milliamperes, is of value in producing the result; in treating prostatic disease in this manner he noticed the rapid laxative effect of the galvanic current, and the secretion from the mucous membrane is stimulated, as well as peristaltic action.

The treatment of chronic colitis should depend largely upon its ætiology, and the physician should not be satisfied with such a diagnosis as chronic catarrh of the large intestine of nervous origin, for the nervousness is usually the result of the colitis. In 500 cases which came under the observation of Von Beck he found chronic inflammation in the region of the large intestine in 394; the cure of the colitis depending in greater degree upon the removal of this inflammation. The most common varieties of this inflammation were perityphlitis, disease of the stomach, and gall bladder, and disease of the female genital organs, lesser causes carcinoma, tuberculosis, and actinomycosis. In five of the cases in which there were persistently recurring attacks of colon disease, notwithstanding vigorous dietic and other methods of treatment, the entire colon was excluded by anastomosis of the sigmoid flexure with the ileum, which produced satisfactory results, so Von Beck offers the following propositions with reference to

the treatment of chronic colitis:

(1) The cause of colitis must always be determined and the treatment based upon this ætiology. (2) If the colitis is due to inflammatory processes in the vicinity of the colon, their fundamental foci must be controlled or removed, operative procedures being employed if necessary. (3) If the causes are to be found in carcinoma, tuberculosis, or actinomycosis of the colon, the colon disease must be attacked by radical or palliative operative measures, including resection, enteroanastomosis, or colostomy. (4) Should the colitis be due to a cause of some other character, ditetic or other symptomatic treatment may be tried. (5) If the colitis yields to none of the methods mentioned, it may be necessary to exclude the entire colon by anastomosis of the sigmoid with the ileum. The large intestine in man is, according to Von Beck, of minor importance, for it is a relic from the herbivora, and is so susceptible to chronic inflammation and malignant tumors that its exclusion can be well tolerated and can lead to no ill consequences.

In the treatment of most forms of constipation and diarrhœa the diet is of paramount importance. The comparative digestibility of the various ailments under different conditions needs to be studied with even more zeal than the action of drugs upon the digestive processes; Perry, in studies on the "Digestion of Breads," has shed important light upon the causation of that most frequent form of indigestion in which the starch, failing to be promptly converted into dextrin and maltose, undergoes fermentation. Ninety-two per cent. of the starch in our food is, under favorable conditions, converted into dextrin and maltose during mastication, and the period of about thirty minutes in the stomach before the HCL secretion is strong enough to stop it; but if very much less than this is so changed, the subjects suffer from pressure, acidity, heartburn, and other common symptoms which are often hardly noticed for a considerable time. The quantity of saliva mixed with the starchy food during mastication determines the amount of starch digested in the mouth and stomach, and supposing the person not to have the bad habit of taking frequent drinks of some beverage to moisten the food he is chewing, the dryer a morsel of bread or other amylaceous article of diet is, the more saliva will be required to pulpify it sufficiently to be swallowed, and thus the greater the proportion of HCL in the stomach puts an end to the amylolytic process. Perry found that besides the degree of dryness the porosity of a bread increases the quantity of saliva absorbed by it during chewing; the softer a sample of bread is, the less saliva it is possible to get into it, and starchy foods so prepared as to be full of fat, such as pastries, fried bread, fried potatoes, are almost impermeable to the saliva, which makes great differences in the digestibility of the different kinds of bread and biscuit. Perry's numerous experiments demonstrate that the percentage of water contained in these was in inverse proportion to the percentage of their contained starch digested in the mouth and stomach. The indigestibility of hot or fresh bread is not due to the presence in it of living yeast fungi or other micro-organisms capable of causing fermentation, for even freshly baked breads were found not to contain any such micro-organisms, none of these concerned in fermetation being capable of withstanding the degree of heat (163 degrees F.) found in the centre of loaves during the baking, but the real cause of the indigestibility of fresh bread is its large content of water and deficient absorbability of saliva. Hence the first steps in the cure of amylaceous dyspepsia is to prohibit, not all starchy food, which would seriously impair nutrition, for three-fifths of the total nutriment of man should consist of carbohydrates, but to forbid all preparations of starch which are not dry and porous enough to admit of a large absorption of, and admixture with, saliva during mastication. The patient thoroughly chews and insalivates such forms of food instead of taking most of his starch in some soft, mushy form, even then helping it down with frequent draughts of liquid because too indolent to masticate enough to provoke a sufficient flow of saliva; eating slowly as well as completely for the insalivation of not only the starchy foods but also meats, since unless the latter are finely comminuted by the teeth, the gastric juice cannot act upon all the particles. Patients who cannot otherwise form the habit of thoroughly insalivating their food, should, according to Brinton, follow Sir Andrew Clarke's rule and count the bites; for every mouthful of meat they must allow thirty-two bites, or one for every tooth, and for tough meat sixty-four bites; solids and liquids should be taken separately, the latter at the end of the meal or between meals. The foregoing rules are sufficient to cure many cases of dyspepsia without other help; but when they are not sufficient, let the patient take his farinaceous and proteid foods at different meals. Take bread and butter or other carbohydrates at breakfast, but no fish, eggs, nor meat with these; at luncheon, have fish, eggs, or meat, but no farinaceous articles whatever. Then at five o'clock another farinaceous meal, as at breakfast, and at eight a proteid meal again. Such a method of feeding should be efficacious, since these different kinds of aliment require very different lengths of time to digest and pass out of the stomach; and when carbohydrates, which should be fully digested within two hours, must wait five or six hours for their acompanying proteids to digest, the probability of the undergoing fermentation in the stomach would seem to be greatly increased; Brunton recommends the drinking of hot water upon rising, retiring, and at other times during the day, when the stomach should be empty or may need such help to empty itself, prescribing acid and pepsin in weak stomachs after meals, and often a little alkali just before meals to stimulate the secretion of gastric juice.

Diarrhœa due to various causes, including phthisis, typhoid fever, erysipelas, and intestinal catarrh, have been treated by use of lactic acid. The preparation used by Shchegoleff was an aqueous solution sweetened with syrup; in this form the drug was well tolerated, and no unpleasant symptoms were produced. The quantity of lactic acid given per diem averaged about 115 grains, or little more than half that given by M. Hayem, who first recommended this treatment, which may perhaps account for some of the failures of the Russian practitioner. Chernisheff has also published an account of his cases, in which he prescribed lactic acid in three cases of acute intestinal catarrh, in six of chronic gastro intestinal

catarrh, also in eight of diarrhœa due to phthisis, and in three of diarrhœa complicating Bright's disease; in all these cases good results were obtained; for example, several cases of simple catarrhal diarrhœa were relieved in from two to five days, while in six cases of non-specific diarrhœa in phthisical persons the diarrhœa ceased the day after the commencement of the treatment. In one case of chronic gastro-intestinal catarrh, the diarrhœa ceased on the third day from the commencement of the lactic acid treatment, but reappeared when it was stopped, and two more days of the treatment effected a more permanent cure. Notwithstanding the observations of MM. Hayman and Lesage on the value of lactic acid in the diarrhœa with green stools of young children, according to whom lactic acid destroys the bacillus on which the condition depends, this medicament is rarely used in America.

In the matter of gastric and intestinal antiseptics, Reigner refers to the various views held as to the possibility of disinfecting the contents of the alimentary canal, continuing the experiments of Strauss upon gastro-intestinal antiseptics. He placed stomach and intestinal contents in graduated tubes, with grape sugar in equal amounts; the antiseptic was then added in known quantity in watery or alcoholic solution, and more rarely in powder form when not soluble. As regards gastric antiseptics, he finds that sodic salicylate 1-8 per 1,000, menthol 1-2 to 2 per 1,000, and thymol 1-8 to 1-2 per 1,000, have relatively high disinfecting powers, while a medium disinfectant action is possessed by chinosol, chloral hydrate, soluble silver, and actol, and only a slight one by even large doses of steriform and ichthyol. As regards intestinal antiseptics, chinosol and thymol arrest fermentation in 1-2 per cent. solution, and delay it in 1-6 per cent.; bismuth salicylate, or bismuth napthol arrest it in 1 per cent., and delay it in 1-4 per cent. Resorcin, chloral hydrate, silver, benzo naphthol, and steriform are inferior to these agents. From experiments it has been learned that antiseptics behave differently in relation to the stomach and intestines; menthol is an excellent gastric, but an inferior intestinal antiseptic; yet these questions cannot be definitely settled by laboratory experiments, but must be determined by clinical practice. Thus a disinfectant is useless if too poisonous, and a gastro intestinal antiseptic must be insoluble, this insolubility being also a guarantee against intoxication. Extensive contact with the intestinal contents is desirable, and hence the antiseptic should be given in frequent and small doses. In motor insufficiency of the stomach, salicylic acid menthol and thymol have been shown to be of clinical value by Strauss. Among intestinal antiseptics Strauss has shown menthol to be worthy of recommendation. Thymol is inferior to menthol, and must be given on a full stomach to avoid irritation. Both bismuth salicylate and bismuth naphthol are worth trying in flatulence.

Gaseous distension in the bowels with or without pain, coming on several hours after eating, is usually a result of intestinal indigestion; the liver, overtaxed in destroying the toxins produced in the intestines, becomes impaired in time, the skin having then a muddy tint and the sclera and conjunctivæ a yellowish tinge, while the urine is likely to be scanty, high colored, and very acid, and indican is generally present in excess. This indicanuria with uricacidæmia can be considered as proof positive of intestinal indigestion. There results also either constipation or diarrhœa, and many troublesome as well as often serious nervous symptoms. The hyperacid urine produces irritation of the genito-urinary tract with a hyperæsthetic condition of the nervous distributed to it. Porter insists also that all the non-parasitic skin affections are in large measures not independent diseases, but only the results of intestinal indigestion. Concerning treatment Porter emphasizes strongly the importance of studying the diet of each case individually with the utmost care, and basing it upon the results of frequent analysis of the urineas to urea, uric acid, indican, etc. While a mixed diet is best for the nutrition when it is well borne, severe restrictions must often be enforced in this disease. In some cases even plain milk is too rich, and to avoid the cream skimmed milk must be ordered, or to get rid of the sugar koumiss, zoolak or kerf must be substituted; it is not always safe to consult the patient's fancies respecting foods, and with the most severely restricted diet it is sometimes advisable to administer small quantities of alcohol temporarily. On account of their large content of nucleo albumens some vegetables should be allowed as soon as they can be digested without much flatulence, and until then a concentrated preparation of the nucleo-albumens should be administered three times a day, followed by eggs, beefsteak, stale bread and butter and toast as speedily as possible.

Porter suggests the administration of a little dilute HCl and pepsin, for those cases only in which the gastric juice is deficient in those ingredients, and recommends the administration also of a few grains of dried ox gall and pancreatic extract three times a day before eating. He gives some of the intestinal antiseptics, such as charcoal, resorcin, salicylic acid, etc., also tannalbin for its effect in precipitating the accumulation of mucous, and when the liver flags, a mercurial; a laxative, if required, and caffeine with strychnine as nerve tonics.

Faber calls attention to the frequency of symptoms referred to the stomach, and strongly suggestive of gastric disease, which yet depend entirely upon affections of the intestines, thus in four carefully studied cases of tapeworm the gastric secretion was found normal in two and excessive in two, the hyperchlorhydria in one of the latter disappearing promptly after expulsion of the worm. In other cases of intestinal troubles various gastric symptoms, such as nausea, vomiting, oppresison, cardialgia, eructations, etc., occur. Even when decided abnormalities of the gastric secretion are found the real cause may be proved to exist in the intestine, the cure of which removes all the dyspeptic symptoms and abnormal conditions. Among the most common of such dyspepsias from bowel troubles are a result of neglected constipation, and secondary irritation or inflammation of the colon. Strong laxatives are injurious in such cases; only castor oil and daily small doses of the saline should be permitted, the main dependence being upon diet. Vegetable food in finely divided form as in puree, stewed fruit, rye bread, coarse wheaten breads, oatmeal, etc., are especially valuable.

THE ABDOMINAL CAVITY SCIENTIFICALLY STUDIED.

BY S. E. STADDON, M.D., PHILADELPHIA.

THE sensibility of the abdomen has been a much mooted question for many years. There have been many exhaustive studies on this subject; among the most thorough and latest is that of Kelling who decided some years ago that it was necessary to study more closely the sensibility in the region of the cecum; also the sensibility of the skin should be distinguished from the tender points in the musculature and these latter from the tender points in the pelvic sacral hollow, and each should be compared with the symmetrical points on the other side of the abdomen. Kelling believes that the tenderness at McBurney's point is purely nervous; here the nerves of the appendix correspond with those of the abdominal wall above, so that the irritation in the sympathic plexus of the region of the cecum produces hyperesthesia in the intercostal nerves and also at the places where, the cutaneous nerves pass through the fascia. Another tender spot exists in the sacral hollow of the pelvis, the ileocolic plexus, which may be hypersensitive and tender in essential irritative conditions, such as hysteria, neurasthenia, etc., or by radiation, as in appendicitis, colitis or cholelithiasis. Tenderness in this region is not alone enough to diagnose appendicitis; and palpable anatomic findings are the only reliable basis for the diagnosis. For the diagnosis between appendicitis and cholecystitis, even icterus is not decisive except when it occurs without fever, for bacteria may be carried from the appendix into the liver and thence into the bile, thus inducing cholangitis and cholecystitis. Thus icterus is not a rare accompaniment of appendicitis; and explains the frequent combination of appendicitis and of subsequent cholelithiasis; if there is a striking lack of tenderness in the pathologic resistance and its vicinity, it is probable that the pain, if it exists, is falsely located, and that it should be referred to the more centripetal sympathetic plexus or to the skin, and in the latter event to the symmetrical point opposite. In cases suggesting appendicitis requiring operation, special attention should be paid to the gall bladder, particularly when the findings in the appendix are trifling, and contrawise the appendix should always be investigated during an operation for gallstones. In cases suggesting appendicitis or a gallstone affection, without decided palpable findings, the diagnosis should be left in abeyance, but the treatment should be that of the more serious affection.

Another interesting subject is acute peritonitis due to infection by the diplococcus pneumoniæ. Ashdoune has reported such a case recently in a London journal as follows: The patient, a woman, had been well excepting that she suffered from pain after eating for six months until two weeks previously when she was attacked with diarrhœa, vomiting and abdominal pain. She thought this was due to her diet and simply took some brandy which relieved her, staying in bed two days without food. On the third day she resumed her usual duties about the house. Two days before admission to the hospital she was seized with acute abdominal pain and diarrhœa; but did not vomit. She treated herself, but as the symptoms continued on the following day she consulted a doctor who gave her medicine which stopped the pain and diarrhœa momentarily. In the evening the pain returned and the abdomen began to swell; distending move above the umbilicus than below it. Movement was impaired, but there was no muscular rigidity, but there was some tenderness over the right iliac region, but no evidence of a tumor. The abdomen was resonant except over the hypogastrium; liver dulness was present. Rectal examination revealed nothing, and the patient's menstrual periods were regular, one being then in progress. The heart and lungs were normal, while her temperature was 103.6 F., the pulse 128, and the respirations were 32. The distension was most marked in the upper abdomen and there was tenderness on pressure in this region, but the lower segment was less distended without tenderness. The iliac fossæ were quite free from swelling or tenderness. On opening the abdomen in the middle line above the umbilicus, the distended stomach was found and a quantity of pus was found between the stomach and the liver wtih thick fibrinous deposits on the surface of the viscera in the vicinity. This pus was odorless, creamy, and of a greenish yellow color, with numerous flocculi floating in it; some was collected for bacteriologic examination; the fibrinous deposits adhered to the peritoneal covering of the viscera and on removing them that membrane was seen to be lusterless, reddened, and in places inclined to bleed; no lesion was found in the stomach, duodenum or gall bladder. A second opening was made below the umbilicus and a similar condition was found there, while the appendix, intestines and uterine appendages were examined, but without finding anything to account for the condition. The peritoneal cavity was then sponged out and well flushed with sterilized water and a Keith's tube was placed in the pelvis and the rest of the incisions were closed. The patient recovered from the anesthetic, but in the evening became delirious and died next day. The pus contained diflococci but no other organisms.

The mucous of the stomach may vary greatly in pathological conditions as Shurtz has shown, for this observer found that one hour after a test meal, also after rinsing the stomach, that in one hundred and ten patients, in whom three tests were made, that in 52 per cent. the mucous was found in excessive amounts, while in the rest it was scanty or lacking; the latter group included 9 cases of achylia, 8 of motor insufficiency, 7 of gastralgia, 9 of gastric neurosis, 4 of anacidity, 3 of hyperacidity, 1 of ectasia, 2 of chronic catarrh and 1 each of ulcer, subacidity, cicatricial stenosis of the pylorus, gastrosucchorrea, obstipation, nephrolithiasis, acute dyspepsia and icterus. In twenty-eight cases of chronic gastric catarrh the mucous was found excessive at all three tests, as also in 6 cases of cancer of the stomach, in 1 of cancer of the liver and in 1 of ulcer, while the mucous was found excessive in the second and third tests alone in 10 patients, including 1 case of ectasia, 2 of motor insufficiency, 1 of gastrosuccorrhea, 1 of chronic nephritis with dyspepsia, and in 3 of gastric neurosis. The mucous was found excessive only in the second test in 2 cases of motor insufficiency, and in 1 of a gastric neurosis, and only in the third test in 7 cases, including 2 of subacidity and 1 each of subacidity, enteroptosis, hyperacidity, ulcer, neurosis and cicatricial stenosis. Shurtz believes that his research will establish the conception of catarrh of the stomach on a more solid basis.

There may be various sources of error in determin-

ing the outlines of the stomach by infection of the empty organ or by percussion of the distended one, while all authorities agree that the normal stomach lies entirely above the umbilicus, yet if the stomach is distended with gas artificially introduced it is forced downward, sometimes as much as 2 cm. below its normal outline when the person stands. Another source of error is when the transverse colon lies in front of the stomach, for the colon is forced forward as the stomach becomes distended by the formation of gas. Radiograms of persons not too stout throw light not only on the topography but also on the motor functions of the stomach to a surprising degree. The repeated giving of bismuth should not be regarded as so innocent a matter as is generally assumed, for while to date no injury has been reported from its internal administration, instances are on record of harm from its external use. In tests Schule found that the findings of percussion, the patient standing, after a test meal, always coincided with the Roentgen ray examinations.

Cysts of the pancreas are attracting more attention. Pollard reports three cases; the first was operated on ten years ago, and the last five years ago, all being treated by drainage through an anterior abdominal incision. In none of the cases was there any history of injury, but in two the onset was marked by severe epigastric pain and vomiting, and in the other case there was a sudden severe pain in the left hypochondrium. No sugar was found in the urine, but in two there was an occasional trace of albumin; two had lost flesh; the stools were natural and there was no excess of undigested fat, and the three cases presented very similar clinical symptoms, for in each there was a large tumor occupying the epigastric and left hypochondriac regions and portions of the umbilical and left lumbar regions; the tumors moved very little on respiration, but could be moved slightly from before backward and from side to side by palpation. In two cases stomach resonance could be obtained by light percussion in the epigastric region, although the tumors seemed to fill that region. In one the percussion note was dull over the most prominent part of the tumor in the epigastric region, although at the operation this part of the tumor was covered by the stomach. Langton reports a case on which he operated successfully, but three years afterward the patient died, and it was found that the scar tissue had entangled the portal vein so that there was practically no circulation through the liver.

Another obscure condition is subphrenic or perigastric abscess which is due to slow leakage through the floor of an ulcer tending to an encysted abscess, which may be discharged into the stomach and the pus vomited; or perforate the colon and give rise to a gastrocolic fistula, the special sign of which is fæcal vomiting without intestinal obstruction; or the pus may travel up behind or through the diaphragm and cause a foul empyema; it may burst into the pericardium and prove fatal, or into the lung and be coughed up. A subphrenic abscess may also point and burst through the abdominal wall near the umbilicus. The diagnosis of such a subphrenic or perigastric abscess is aided by a history of gastric ulcer, but there may be absolutely no history at all; the development of the abscess is indicated by the fever pointing to suppuration, and a collection of fluid and gas below the diaphragm, as shown by a tympanitic percussion note, and sometimes by emphysema or œdema of the skin. The abscess is generally to the left side, but it may extend up in front of the liver to the right; it bulges forward or pushes the diaphragm upward. It is difficult or impossible in some cases to distinguish a subphrenic abscess marked by pushing up the diaphragm from one that has already extended through into the thorax, but an early exploration should be made through an incision in front. A trocar or aspirator is useless; if pus is reached, an incision must follow; if there are no peritoneal adhesions, the withdrawal of the trocar may allow of pus escaping into the peritoneal cavity; a negative result gives no information and may result in harm by misleading. Generally, an incision is made in front and a tube or strip of gauze inserted, and when the abscess extends backward make a counter-opening behind and to the left. The thorax should be opened by removing a portion of one or more ribs, and the pleural cavity filled with gauze. If the pus is still below the diaphragm, this structure is fixed to the upper margin of the thoracic wound so as to shut off the rest of the pleural cavity; forceps are pushed through the diaphragm and the opening stretched.

A chronic gastric ulcer which has not yet perforated may call for surgical treatment on account of adhesions, hæmorrhage, pyloric spasm, and stenosis with dilatation, a bilocular or hour glass stomach, or stenosis of the cardiac orifice, but the question arises does the chronic ulceration in itself need surgical interference? Should there be severe and persistent pain after meals, with frothy vomiting containing mucous, shreds, etc., especially with loss of flesh, unrelieved by medical treatment, an operation should be advised. Remember that Fournier, Flexner and Mackay have described syphilitic ulceration and hæmorrhage rapidly cured by iodide of potassium, but in all these cases the patients have had well marked syphilitic manifestations. The object of the operation is, in the first place, exploratory; adhesions, pyloric stenosis, or a malignant tumor may be met with. An ulcer on the anterior wall, not close to the cardiac or pyloric orifices, with a thin floor but without much induration around it, may be folded in and fixed by a double row of Lembert's sero muscular sutures, with the object of obtaining atrophy of the invaginated portion. If there is marked induration preventing invagination, excision of the ulcer is indicated, the line of removal being carried through healthy tissue, while hæmorrhage is arrested by ligaturing any beeding point and then bringing the edges together by a suture passed through all the coats; this is covered in by a superficial sero muscular line of stitches. If a single ulcer can be felt on the posterior wall by passing the finger behind the stomach through an aperture in the gastrocolic omentum, the ulcer may be exposed through an incision in the anterior wall, cleaned of debris, and its floor seared by the cautery. When the ulcer is near the pyloric orifice, or there is widespread destruction or atrophy of mucous membrane, as shown by a diminution of hydrochloric acid, gastro enterostomy should be employed. The principal causes of adhesions are intrinsic, chronic ulceration being the comon cause. Adhesions may arise from extrinsic causes, such as injury, gall stone colic or umbilical hernia; also, gastric fistulæ, whether produced accidentally or by operation. The chief sign is pain, gastralgia in the epigastrium, exaggerated by movement, and gastric distension, generally out of proportion to

other symptoms and lasting for a considerable period; this pain may cause loss of weight owing to the patient not taking food from fear of causing pain, and there may be a rigidity of muscles, giving rise to the idea of a tumor. If the band compresses the pylorus, there are the special signs of pyloric obstruction; if the colon, then distension with chronic obstruction. It can hardly be said that the diagnosis can be definite; the operation commences usually as an exploration. A band may be found fixing the stomach to the abdominal wall, to the ring of an umbilical hernia, attaching the pylorus to the liver or to the colon. The thinner kinds of adhesions may be freed by dividing them between two ligatures, and so, by a comparatively slight operation, the patient be completely and permanently cured; if the adhesions are very extensive, if the pylorus is closely adherent to the under surface of the liver or gall bladder, it would be dangerous or impossible to separate them. Gastro enterostomy should be done, for the most successful results follow this operation.

It is well to remember that gastric hæmorrhage is not the same thing as hæmatemesis, for, to say nothing of other causes, the latter may be due to a leaking aneurism or varicose œsophageal veins; for this reason Terrier and Hartmann prefer the term "gastrorrhagia." Gastric hæmorrhage may be traumatic, as when blood appears in the vomit immediately after an injury; or blood appears in the vomit in connection with cancer, but the question of surgical interference with the special object of arresting hæmorrhage arises only in cases of chronic ulceration. A latent gastric ulcer may open into one of the large branches of the gastro-duodenal artery, usually near the head of the pancreas, with fatal consequences; or the patient may never vomit and the cause of death remain unsuspected until the post mortem. Again the patient may suddenly vomit a pint or two of blood besides what is passed subsequently as melæna; this hæmorrhage may be preceded by a sharp pain; or the patient feels suddenly faint, a sensation of rapid distension of the stomach with a warm fluid ensues, and then, with a scarcely perceptible effort, blood pours from the mouth. The patient is thus suddenly reduced to a state of acute anæmia in which she may continue, especially if there is a continual leakage. Here is an important problem: the patient has not died from the first unforeseen hæmorrhage, but will another occur, and, if so, will the second or some subsquent hæmorrhage prove fatal? The consensus of opinion is that gastric hæmorrhage rarely proves fatal, and that after one severe hæmorrhage, a subsequent one is not likely to prove fatal; but this question requires a thorough re-examination; it requires to be looked at from the standpoint of the surgeon, for the traditional view is probably a wide generalization in which all cases of gastric hæmorrhage are included, the slighter with the more severe. Chronic hæmorrhage, from being more often seen, impresses the mind longer than cases dying suddenly, in which no thorough post mortem examination having been made, the fact that it was due to hæmorrhage from an ulcer, which might have been amenable to surgical treatment, has escaped being recorded. There is not enough known to warrant surgical measures after the first severe hæmorrhage, although further observations may tend in this direction, especially, perhaps, by exploding the notion that one severe hæmorrhage may be followed by a complete and permanent recovery, but should a second severe attack of gastric hæmorrhage occur a surgical exploration should be made, for medical treatment alone cannot prevent its recurrence or do anything to actually arrest the hæmorrhage when it occurs. Moreover, the patient and friends must remain in dread of bleeding setting in at any time and two attacks of severe hæmorrhage can hardly arise except from a considerable ulcer which, even if it does not cause death by hæmorrhage, will eventually prove fatal in some other way, while less severe attacks of recurring hæmorrhage are due to small ulcers connected with the smaller arteries and veins at a little distance from the lesser or greater curvature, or are due to more or less widespread, yet superficial, excoriations of the mucous membrane, giving rise to capillary hæmorrhage. A patient weakened and rendered anæmic by recurring losses of blood, becomes emaciated from lack of food owing to loss of appetite, pain, vomiting, or fear of exciting hæmorrhage; if recurring attacks of hæmorrhage, anæmia and emaciation can only go on until some fatal complication is set up, a surgical operation is clearly indicated. The time for the operation is as soon as the patient is fairly convalescent from the last attack of hæmorrhage yet before he has fully regained a normal pulse tension. During the convalescence preceding the operation, the patient should be kept in bed on a semisolid diet with as little liquid as possible, the bowels well open, and iron administered. To operate during the acute anæmia is hazardous, for while bleeding is going on, even if small leakages are continuing, the patient is so weak that success is most unlikely and in the present position of affairs the future of the operation may be unduly prejudiced. Upon opening the abdomen if the source of the hæmorrhage is found to be a single ulcer, it may be possible to tie the vessels on the outer surface of the stomach which supply the ulcer, and afterward to tuck the ulcer in by sero muscular sutures, or alternatively the ulcer may be excised. If the ulcer is not made apparent by its induration, is on the posterior wall, or there are widespread excoriations, two courses are open, one to incise and explore the stomach for the bleeding point, the other to do gastro enterostomy. The exploration of the stomach is more severe, but the most satisfactory operation; for this purpose a free opening is made longitudinally midway between the curvatures, and by passing the fingers through the gastro colic omentum behind the stomach, the wall is pushed forward and the inner surface appears in the wound; the ulcer is cleaned of debris and foreign bodies and the surface is seared with the cautery. When there are only minute bleeding points or widespread excoriations, the successive portions of the inner wall must be examined under a good light, and any points likely to bleed touched with the cautery. In some cases, one of the larger gastric arteries may be tied on the outer wall of the stomach; the wound in the stomach is then sewn up. Pyloroplasty may be done if coexisting pyloric stenosis is present, while gastro enterostomy may be employed when the ulceration cannot be defined without opening in the stomach, an operation which the patient seems to weak to stand, its great value being to drain off excess of hydrochloric acid and the remains of food. It may also be done after the interior of the stomach

has been explored, when very extensive excoriation or marked pyloric stenosis, not likely to be cured by the simpler pyloroplasty, has been detected.

THE FIELD OF THE UNTRAINED NURSE.

BY A. L. BENEDICT, A.M., M.D.,
Consultant in Digestive Diseases, City Hospital and Riverside Hospital; Attendant in same, Mercy Hospital, Buffalo.

THE demonstration by actual experience, of the practicability and value of a profession of nurses, the growing influence of this profession and the recently enacted laws with regard to education in training schools and registration, have, very naturally, led to a movement to restrict the field of nursing to regularly licensed graduates, just as is that of medicine.

Such legislation naturally appeals to the professional nurse who is, herself, a hospital graduate as eminently desirable. This sentiment is by no means to be ascribed entirely or even largely to selfish interests, but results from precisely the same professional spirit and ultimately, the same philanthropic spirit, which has actuated the medical profession to secure analagous legislation, restricting practice by non-graduates. With this sentiment, the medical profession are apt to be in sympathy and yet, there is another side to the matter which deserves serious consideration. In presenting this side, the writer does not wish to pose as in antipathy to the aspirations of the nursing profession, nor as failing to appreciate to the utmost the scientific and practical advance of medicine due to the development, during the last generation, of a true nursing profession. There are, however, various extremely practical obstacles in the way of restricting the practice of nursing as is that of medicine.

First of all, the practice of nursing has been from the beginning and must continue to be, susceptible of greater specialization than is that of medicine. In theory and in law, the physician is educated and licensed as competent to practice all branches of the healing art. Actually, no physician is competent to do so, or, rather, no human being can be imagined as having such a breadth of talent and such mental acumen and physical strength as to be able to acquire even reasonable proficiency in all branches of practice, and certainly not in the four years required for medical training. As a matter of experience, we find that, with some exceptions, a sense of honor and selfish interest, lead each practitioner to limit his practice somewhat according to his tastes and abilities and to secure efficient counsel when any given case transcends his own powers. Some time, there must be a legal recognition and restriction of specialties and a relegation to specialists of certain kinds and grades of cases but, at present, the difficulties in the way of providing justly and efficiently for such cases, are too great to allow a change.

With the present training school course, or any such modification or prolongation of it as may be considered feasible, it is impossible to provide for the practical education of nurses on so broad a scale as is possible and as is actually achieved for medical students. Even from the largest general hospitals, having the greatest variety of cases under treatment, nurses are graduated with very great differences in training as regards individual diseases. Even in the same class, one nurse has had ample training in the care of typhoids, but practically none in that of the exanthemata; another has had a rich surgical experience, another very little, and so on. Again, while all medical schools that are to be considered in good standing at all, are very much alike in essentials, hospitals differ very materially, some being limited almost entirely to surgical cases, many excluding actively contagious cases, others having a disproportionately large obstetric service or none at all. Yet, these hospitals exist as a matter of practical necessity, they must have nursing staffs, must, under existing conditions, depend largely upon pupil nurses, and these nurses must be fairly treated by licensing boards. Thus, in private practice, the nurse, even more than the physician, must be limited in employment according to actual personal training and ability, in certain special fields.

If we accord the privilege of a license to the graduate of a training school very deficient in certain lines of practice, or even limited to a few kinds of cases, we must also recognize the plain facts that a single surgeon or physician, in or out of a hospital, may take a woman under instruction and train her to a high degree of efficiency as a nurse. In a certain sense, physicians may be similarly informally trained and, indeed, up to fifty years ago, many of our best physicians and surgeons were thus trained, by the system of preceptorship. That this system is no longer legally recognized, is due to the fact that more than the number of physicians needed can be better and more economically trained by colleges.

A very important distinction between the medical and the nursing profession in this regard is that the former is an executive profession, in which each individual must, for the most part, exercise an undivided responsibility as to the care of a patient, while the latter is avowedly and by its very nature, subject to the executive control of the former so that, excepting a line of work which is scarcely recognized as real nursing, the nurse never is called upon to assume such responsibility. Many surgeons and even physicians actually prefer specially and informally trained nurses to those graduated from hospitals. Another equally important distinction is that while in medical practice, theory holds a very important position, in nursing, the main qualification is practical experience and a certain innate tact and adaptibility which the training school may recognize in its selection but which it cannot impart to one lack-in it. Some predilection is also of advantage in medicine, yet many of our best physicians do not naturally like their work and have not, originally, shown the aptitude for medical study that might have been expected. On the other hand, many "born doctors," by reason of deficient training in medical schools or neglect of post graduate study, prove to be very mediocre practitioners.

As a general rule, thoroughly good physisians and surgeons are poor nurses, while good nurses, who afterward decide to study medicine, do not achieve success. This is natural; in any field of human activity, we find that the best executives are not usually adapted to work requiring attention to details and to regulation by others and vice versa. Moreover, general feminine traits tend to make women better

nurses than men.

The fact may also be mentioned that nurses who are well adapted to the routine and discipline of hospitals may make very poor attendants on the sick, while women who can scarcely retain their position in a hospital for more than a short time, may enter the practice of nursing without a diploma and yet prove to be most satisfactory nurses. It would certainly be unjust to such women, to debar them from a field of usefulness to others and of benefit to themselves. In some hospitals, the very endeavor to select nurses who will readily submit to discipline, results in a low standard of practical efficiency, simply because the nurses are too lacking in self-assertion and initiative in emergency.

Without going into all the reasons that might be mentioned, the fact remains that, for present practical purposes, thoroughly good nurses may be found who have not diplomas while, if the new requirement of a high school education for all nurses in training schools, is fulfilled, the writer prophecies that there will be a still greater number of unlicensed, but competent nurses and, conversely, a marked shortage of supply for hospitals.

There is also to be considered, the needs and abilities of the laity who employ physicians and nurses and, in this consideration, we must be careful to set aside fortunate personal experience, and to view the problem broadly. It is estimated—there are no accurate statistics available—that only about one-tenth of the population of this country, the richest in the world, have incomes of $1,500, $2,000 or more, per family. The great majority of the population lie between the extremes in which sickness or accident necessitates the acceptance of public charity in hospital wards and in which all the refinements of medical science and art are available, without any sacrifice at all or with a possible sacrifice of money saved for a rainy day. Now, while the physician, who sees many cases in a day and spends comparatively little time upon each one, may very readily adjust his charges to the means of the individual, the graduate nurse, devoting her entire attention to one case or a few cases in a house or hospital, at a time, cannot make the necessary discount to the person of average means—using the word average in its literal sense of a family income of a few hundred dollars a year—while, on the other hand, the patient of ample means, will not as a rule, pay more than the ordinary fixed charge of $20—$25 per week, which is about the minimum at which a competent graduate nurse can afford to work, allowing for necessary periods of lack of employment, the comparatively short duration of her professional career and the consequent necessity of providing to some extent for the future. Thus, the mere matter of distribution of wealth—and it must always be remembered that if the total wealth of the country could be kept equally distributed, no one would have enough for what we consider a modest but comfortable living—absolutely requires the employment of untrained or informally trained nurses.

It has sometimes seemed to the writer that this problem might be partially solved by a more general introduction of the system of visiting nurses, for such cases as require expert attention for only a short time each day or every other day, yet there are practical objections to this system. Nurses, as a rule, regard unfavorably and in the light of quackery, the visiting system. Just why this system is any less ethical for the nursing than for the medical profession, the writer is unable to explain. Again, as a matter of practical experience, nurses awaiting a call to permnent case, have usually charged for brief attention to a case requiring only such care, about two-thirds of their full charge for a case requiring their entire time. Without any desire to belittle the value of the services, the hard economic fact remains that such a charge is still higher than the average patient can afford. Again, the writer would remind his readers that the word average does not refer to the average within the experience of trained nurses nor of his own practice, but to the community as a whole. Moreover, the saving of a third of the expense of a nurse, not including board which is usually disregarded in private families, does not amount to much when the additional luxury of attendance throughout the entire day is considered. Again, the two-thirds charge, comes in direct and unfavorable competition with the entire charge for a private room in a hospital, with board and medicine, and any reasonable attention from the nursing staff.

Quite aside from any absolute financial inability to employ trained nurses, there are a great many cases in which practical convenience suggests the employment of a nurse of an entirely different grade. Among the small percentage of our population who possess ample means and who have commodious homes, such considerations do not often arise and, indeed, we often find trained nurses employed by families of wealth, as companions, attendants upon healthy children and as housekeepers, etc. Still, the matter of convenience does frequently come up as a factor against the employment of a graduate nurse, in families of more than average means who could and would afford trained attention in a grave case of typhoid fever or pneumonia, a surgical case, or a difficult labor.

However willing the graduate nurse may be to accommodate herself to circumstances, to make herself generally useful, and to show her true dignity by waiving an insistance upon minor privileges and courtesies, she is always in theory and usually in fact, a gentlewoman, who must be treated with consideration, who cannot be called upon for purely menial service and whose advent into a humble although fairly prosperous home, does necessitate a considerable change of routine and involve much trouble, not to mention expense of a direct nature. The majority of us work because we have to, to earn a living, and if the nurse will stop to think of what her advent would mean as an entire stranger, into her own home, when it is disturbed by sickness and when hospitality is at a low ebb, she can readily understand the allusion. And, in the same way, we physicians ought to consider how the expense of our own services and of other necessary items in case of sickness, impose hardship upon all but the five per cent. or so of the population who are well-to-do, and we should avoid the suggestion of unnecessary sacrifices.

A good many families of fair means, visited with mild sickness or surgical accident are placed in about this position with regard to the employment of a trained nurse: There is no bed-room for her that is suitable, and her advent means the turning out of

some member of the family. Possibly there has been a guest chamber, but it is needed for the patient or for some relative summoned from out of town, or the guest has accidentally become a patient. A surprising number of flat dwellers, have no regular spare room, but make some temporary shift or use the parlor to accommodate the guest. Often there is no servant, and a good strong woman to come in and do housework and assist occasionally in lifting the patient, is really more help than a nurse. Even the extra laundering which a trained nurse requires, may be a very appreciable drawback, although it seems like a very small item. If a servant is kept and more assistance is needed, it is often a great relief to employ some one who can be lodged with the servant and who can be asked to help in various menial capacities.

In other cases, especially when the family or individual boards, day help is often a desideratum. In any of these cases, we have supposed that the services of a nurse were not so much needed as unskilled help to relieve the amateur domestic nurse from household cares. In others, of no great severity, it is really necessary to have an attendant for the patient, and yet, for one or more of the reasons given, all ultimately economic, a graduate nurse is dreaded. For such cases, so-called trained attendants have been instituted in some places. These are taught to take temperatures and pulse rates, give ordinary enemata, to rub upward instead of downward, to use bed pans gently, to know that there is such a thing as a bed sore, to give hypodermics and to be neat and quiet in the sick-room.

Now it is perfectly obvious that an untrained or partly trained nurse cannot take the place of a duly graduated nurse and that, in serious cases of any kind, the services of the latter should be insisted upon and, if the circumstances are such that the patient cannot command them at his home, he should go to a hospital. Moreover, when the circumstances are such that it is practically immaterial economically whether a trained or untrained nurse should be chosen, the physician should give his patient the benefit of the doubt by insisting on the former. On the other hand, the attempt to restrict the practice of nursing to graduates, after the analogy of medical practice, is not only impracticable on account of legal difficulties, but, if feasible would work genuine hardship and, in many instances, would be equivalent to declaring that the patient could not have any nurse at all. On the other hand, the untrained nurse cannot expect legal recognition nor affiliation with nurses' organizations, nor a fixed standard of remuneration, but must seek employment on her individual ability in cases of relatively minor importance.

Bodington, in 1840, wrote an essay on the treatment of tuberculosis on "principles natural, rational and successful." The *Lancet* published his essay in that year; and has recently reprinted it. One finds here the basis of the present day sanatorium plan of dealing with this disease. Bodington established his own institution at Sutton-Coldfields, in England, but his neighbors objected so vigorously to his beneficent enterprise that he had to abandon it. By a strange irony of fate, relates Latham, he turned this institution into an asylum for the insane.

SURGERY OF THE BLADDER.

BY J. LEE FOWLER, M.D.

PART I.

THE absorptive power of the bladder and urethra is a matter of great dispute. Bazey found that injections of poisons in the bladder killed animals with as great certainty as if made into the rectum or subcutaneously, chemical and microbic poisons being used. Cocaine, strychnine and hydrocyanic acid killed animals in a few minutes; while belladonna, curare, and pilocarpine produce their effects much more slowly. Pneumococcus injected into the bladders of six rabbits produced a fatal result in five instances, three dying in five to six days with pleural and peritoneal exudations without renal lesions. Maceration of gangrenous muscle by the septic vibrio, after being passed through a Chamberland's filter, was injected into the bladder of a rabbit, and the animal died in twenty days; water appeared to be absorbed by the bladder also. Urethral absorption appeared to be very active, while that by the ureter was less; but when the tonic fluid reaches the level of the calices death depended on the size of the dose.

The mortality from traumatic rupture of the bladder has during the last fifteen years been reduced from 90 to 54 per cent., due to early operative interference; the two commoner forms of rupture—the intra peritoneal and the extra peritoneal having a different death rate. In a series of thirty-four intra peritoneal ruptures fourteen recovered and twenty died; of eighteen extra peritoneal ruptures ten recovered and eight died. Coexisting fracture of the pelvis, of course, adds to the gravity of the case. The most important symptoms of intra peritoneal rupture of the bladder are a peculiar pain felt at the time of the injury, chilling of the surface of the body which may persist, an urgent desire to urinate which the patient cannot satisfy, the absence of any vesical swelling above the pubes, the absence of urine in the bladder or its existence in a very small quantity. Where doubt exists as to the seat of rupture the median suprapubic incision should be used, the peritoneum only opened after the cavity of Retzius has been explored; suture should be attempted in every case, if possible. Sieur believes that surgical intervention should be practiced in every case of vesical rupture, whatever the form of injury, unless there has been either very intense nervous shock or the patient has been reduced to a hopeless state of urinary infiltration. Cellulitic abscesses do not frequently burst into the rectum, vagina and bladder, and many of the cases quoted belong to a time when little was known of the pathology of pelvic inflammations. The following interesting case is given as an illustration of this by Cullingworth: The patient, a woman of thirty-two, married nine years, had never been pregnant. Six months before admission to the hospital she had what was supposed to be an attack of influenza. She kept her bed for a fortnight, and then went into the country. While there she noticed some thick, yellow matter in her urine, which continued in amount to half a fluid ounce. She had suffered pain from time to time in the right iliac region, but this had never been very severe. On examination the uterus was found of normal length, the canal directed to the left. A large, hard, uneven, roughly globular mass was felt on the right side of the pelvis depressing the vaginal roof and extending upward to

the level of the anterior superior iliac spine. Laparotomy was performed, adhesions separated, and an inflamed right Fallopian tube and a suppurating cystic ovary, three inches in diameter, were removed. On the under surface of the ovary was a small opening, from which blood-stained purulent fluid oozed on pressure, and which probably represented the aperture of communication with the bladder. No attempt was made to close the opening in the bladder. The urine, subsequently withdrawn by catheter, contained blood and pus. The catheter was used every two hours at first. These continued a little suppuration from the lower angle of the wound for six months, when the sinus finally closed.

Diagnosis of tuberculosis of the bladder rests upon the discovery of the tubercle bacillus and clinical experiment; the first condition so often fails that the second is better for positive diagnosis. This consists in the injection of some of the urine into the eye, the joint, and the pleural or abdominal cavity of a rabbit. Koeing used this method before the discovery of the tubercle bacillus, and even yet it is the surest and easiest diagnostic help where the identification of the germ has not been satisfactorily made. Some urines from patients who are on clinical grounds diagnosed to be suffering from tuberculosis are very pale and nearly clear; so clear, in fact, that doubt is often cast upon the correctness of the opinion, but in one or two cases in which nearly clear urine was being passed, a fresh sample induced tuberculosis in animals. Bardenheuer has dissected away the centre mucous membrane of the bladder in three instances for tuberculosis of that organ. This procedure was followed by contraction of the bladder and incontinence of urine.

Keen suggests that in renal colic the bladder should be systematically, as a routine practice, washed out with a Bigelow evacuator, if the stone is not discharged within a few days, while in a valuable article on the comparative safety of suprapubic lithotomy, of lateral lithotomy, and of litholapaxy in young males, Barling, by statistics gathered from six London and six provincial hospitals, shows that the mortality after the suprapubic is greater than after the lateral operation—17.4 per cent. as against 5 per cent. Fenwick drew attention to the difficulties in sounding for stone in cases with much enlarged or in irregularly enlarged prostate, for calculi were sometimes so deeply fixed behind and below an upraised median lobe or collar that the sound introduced per urethram could not reach them, however much rotated it was, or however forcibly it was thrust toward the base over the lobe. Harmful pressure was often exercised upon the prostate, and cystopyelitis and hæmorrhage were apt to ensue. Fenwick suggested that whenever the prostate was very large or difficult to traverse, or if it bled easily, that an aspirator trocar and cannula should be thrust suprapubically into the full, cleansed bladder, the trocar replaced by a loosely fitting blunt pilot, and the post prostatic pouch and bladder base carefully prodded with this instrument to ascertain the absence. To drain the bladder suprapubically a larger trocar and cannula could be employed, and through the latter a straight electric cystoscope, which he had had made, could be introduced into the washed out bladder, and the interior examined. Fenwick advised this latter procedure in cases of much enlarged prostate in which a suspicion of benign growth existed; for in these cases the ordinary cystoscope could not be used. If a stone or benign growth was discovered, a director could be passed through the cannula, the latter withdrawn over the director, and the bladder opened by a limited incision on the director. The disease could then be dealt with and the bladder drained, this method of sounding and cystoscoping would save exploratory suprapubic cystotomy, which was a severe procedure in old age.

Freyer has published the results of a series of eight hundred and fifty-two operations for stone in the bladder by all methods—namely, two hundred and forty-five by perineal lithotomy, six by suprapubic lithotomy, three by rapid dilatation of the urethra in females, and five hundred and ninety-eight by litholapaxy, or "lithotrity at one sitting," as the operation is sometimes called. These latter five hundred and ninety-eight cases removed by Bigelow's method demonstrate what a vast influence the modern operation has had in ameliorating the sufferings and diminishing the mortality attendant on stone in the bladder. Fryer has abandoned the use of all but fully fenestrated lithotrites, considering the use of any other kind almost unjustifiable, considering the danger that exists of débris getting impacted in the jaws of non-fenestrated instruments—an accident which cannot occur with fully fenestrated ones when properly used. The use of the lithotrite in the modern operation is to crush the fragments, but not to fish them out.

Nocturnal enuresis is a difficult and often baffling affection to treat. Thursfield (*Clic. Jour.*, Oct. 11, '05) has used urotropin in thirty cases, with good results in nine. It must be given well diluted, otherwise the patient may have renal pain and hermaturia. Ten grains in half an ounce of water, to be further diluted with a wineglassful of water, t. .i d., is the best method of using it. Acid urine requires potassium citrate, gr. xv. ℥i., t.i.d. Belladonna is, after all, the most useful drug, given either as the tincture, the extract or as liquor atropinæ. It must be given in large doses and over a long period. Ten minims, t.i.d., might be raised rapidly to thirty or forty minims or even a drachm, t. i. d. As the dose is increased the frequency of the enuresis will diminish; after from several weeks to two or three months it will cease. The drug should then be continued another month, and the dose gradually diminished. By the time we have cured the enuresis we are about half way through with the case. There will be midriasis, on account of which the child may have to be kept from school, and dryness of the throat, with sometimes a smarting sensation in the pharynx and mouth; but these symptoms are inconsequential if relief of the enuresis is obtained. In excitable children potassium bromide is added to the belladonna at bedtime, and those who are anæmic or ill-nourished have also iron, arsenic or strychnine. When these measures fail electricity may be tried—a foradic current, with one pole in the urethra, the other on the abdomen or back, usually finishing with a few make-and-break shocks of the constant current. (We deprecate any form of treatment which requires manipulation of the parts. See item on Enuresis in our March issue.)

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 662 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, JULY, 1906

Life is a series of surprises.—*Emerson.*

THE MEDICAL PROFESSION'S GROWTH INTO A BUSINESS FORCE.

THE recent meeting of the American Medical Association in Boston has served again to illustrate the fact that the profession as a whole is growing into touch and sympathy. There was a time when many physicians felt it beneath them to take active part in society work, especially when that work was to force certain issues. It seemed to these sensitive individuals that it savored too much of trade unionism. But this is not so to-day.

The active practitioner is alive to-day as never before to his dangers and responsibilities and he has learned one thing, which is that his profession can do as a body what is impossible to him as an individual. There has been most skilful development of this idea by the association itself in the past five years, and the labors of these pioneers is now beginning to bear fruit. Dr. McCormack has done colossal work in cementing the profession together. It seems strange to feel that one man could do so much, but we must remember the harvest was ripe for the reaper's blade. His work would be impossible to accomplish if it did not meet a response to an immediate need in the bosom of the profession.

Already practical evidences of this close association is shown by the vigor with which physicians are now attacking certain problems. Thus the question of the fee for examining applicants for life insurance is before the profession. It should be met decisively, emphatically, and with dignity. No part of the censure of the recent investigation of the insurance companies fell on the medical departments: their work was already done efficiently and economically. No money has ever been squandered or lost in the medical department of any company. Yet when the cry for retrenchment goes down the line, the medical departments are forced to a larger reduction even than the departments which have been under fire and were found lacking.

What is the reason for this? It is simply due to the fact that in the past the heads of the various companies have found physicians as putty in their hands. The average manager of the average insurance company has a contempt for the business ability of the average physician. He feels that no matter how badly the medical examiner is treated or paid, the faithful doctor will slink back like the faithful dog to the hand which chided him. This is shown more clearly in the manner in which nearly all companies treat their employees. The companies have special bonuses for good work, faithful services and intelligent co-operation for their agents, cashiers, agency directors, etc. This took the form of money prizes, of prizes in merchandise, of trips to various resorts, etc. These prizes and encouragements were for all branches of the service except the medical department. The men here were expected to be most faithful, most intelligent, most honest, all without any encouragement, despite the further fact that in the start they were the most poorly paid employees in the company's employ.

All insurance companies place little time on the medical examiners. They may lose sleep over the prospect of getting good agents, good agency directors, or honest, efficient cashiers; but the medical department runs itself, for if the present examiners are dissatisfied, the officers see a vista of hungry applicants beyond, all ready for work for any pittance doled out.

The president of an accident insurance company in Maryland recently wrote the editor of the *Journal of the American Medical Association* a letter, in which he justified the trifling sums paid for various operations the company wanted done, by the statement that they could get good work from good men at these prices. As a business proposition he failed to see why they should pay more. This is cold, hard reading for the physicians, but it is undoubtedly business. If the company can get good work done at starvation prices, they undoubtedly have the legal right to pursue that course. But the duty of the profession is to see that they can not get good work at such prices.

The so-called less intelligent trades have already found that co-operation and union is necessary for their existence, else they would be ground and torn to powder. Slowly the physician is learning that it is not beneath his dignity to do the same. We must work together if we would advance.

We have here an excellent chance to impress the business world, especially the insurance world, with a display of intelligence and strength. Let the doctors sign this new declaration of independence. Let them show that their backbones are no longer made of gela-

tine: let them stand out for their rights and their rights will come. Once let the officials of a company get the impression that a good doctor will not work for less than a certain price and he will be the first to suggest that that price be paid. The basis of all insurance work rests on the medical department; the officials know this and they are intelligent enough not to jeopardize that security when they learn that after all doctors have backbones and some glimmerings of business ability.

PHYSICIANS AND "WHO'S WHO" IN AMERICA.

THE recent publication of "Who's Who in America for 1906-1907" has again brought an interesting work to public notice. It is a difficult task in a country with such loose lines of distinction to pick out the men and women of distinction. In the first place, it is hard to define what constitutes a celebrity. A man may be famous in a city or a state, or in a certain class of workers, and yet be utterly unknown outside. Thus some years ago there died and were buried on the same day the famous poet Walt Whitman and the great surgeon Dr. Hayes Agnew. Both lived in or near Philadelphia, and it was curious to note the difference in their fame. Whitman led in Camden the life of a recluse, in an obscure part of that town. Agnew was active in the public eye, and lived in the most fashionable part of Philadelphia. Locally there was no comparison as to fame: Agnew completely overshadowed Whitman. Whitman was not known to Philadelphia's masses and Quaker City literati were not in sympathy with him. As a result Agnew's funeral might have been compared to Lincoln's. It attracted thousands and held a great city in sorrow. Whitman's was attended by a faithful few on Camden's outskirts. Yet away from Philadelphia, Agnew's fame grew small and Whitman's waxed large. Thus in *Harpers' Weekly* Whitman was given a full-page illustration as a frontispiece, while Agnew's face was tucked away on a modest inner page at the head of a single column. Thus at different points the fame of these two men was of varying shapes and importance.

The work has attempted to solve this problem, and is probably the most successful effort yet produced, for insertion is not made for subscription or solicitation. The candidates are selected by the home office and inserted whether they buy the work or not. This is as it should be. The average book of popular citizens simply represents the energy of the canvassing agent. So the book may be accepted as an impartial guide.

According to this work there are 16,216 persons of more or less national importance. Of this number 1,704 are foreign born, and eight were born at sea. This shows that about ten per cent. of our famous people are foreigners, which is an excellent showing. Of these foreign-born, over fifty-six per cent. were born under the British flag; this is not so much a recommendation of England as of the fact that the knowledge of the English language is essential to success.

The largest number of famous people born in one state is found in New York, with 2,857. Not content with their native born, New York City has attracted 1100 more, so that there are nearly 4,000 famous people within the boundaries of the Empire State. This is true of only one other state, Illinois, where a native collection of 607 is augmented by an immigration of 400 more, due to the attractive powers of the Windy City. The next state in point of celebrity is Massachusetts, with 1,603 native well-known people, but the Bay State has lost nearly 200, probably by attraction to New York, where a wider field awaits their activity. The same statement is true of the third state, Pennsylvania, where with 1,432, only 1,192 remain.

Next comes the Buckeye State with 1,100 famous sons, of which only 600 remain faithful to their native soil. From here comes quite a drop to a group of states with about 400 famous children, such as Connecticut, Vermont, Virginia, New Jersey, Indiana, etc. In this list it is remarkable how many physicians are found; thus in glancing through the work on almost every page can be found well-known medical names, while Osler's famous dictum as to forty and sixty years receives another fierce attack.

It is the physician who writes who receives national attention. It is as necessary for the successful doctor to write as it is to practice, otherwise his fame is purely local. All the great minds of the medical profession were or are prolific writers. With their pens they can reach thousands where their oral words or actions influence only tens. Of course a physician can rush into print too much, but the average practitioner errs too much on the negative side. There is in every physician's experience much valuable data which would help the world if it were but published.

BACTERIOLOGIC IDENTIFICATION.

UP TO about a year ago, syphilis, though one of the commonest of diseases and unquestionably due to a germ, was of unknown origin. Within the year, of some 360 cases carefully examined, the spirochete pallida has been found in all but about 60. This germ has even been found in tertiary acquired cases and in late hereditary ones, that is to say, where infectiousness has usually been absent so far as clinical testimony goes, and where the lesions have usually been considered to represent the path of a desolating infection, rather than an active infectious process. The spirochete is of fair size as compared with other familiar bacteria and, while its second (specific?) name *pallida*, suggests a reason for its previous invisibility.

the staining methods adopted are not especially difficult or out of the ordinary.

Indeed, the best reason for being sceptical as to the genuineness of the present germ of syphilis is the very ease and frequency with which it is now found, as compared with the former failure to find it in lesions widely accessible for study by any bacteriologic student in almost any part of the world and under circumstances that rendered it practically certain that there was a germ to be discovered and that offered fame for the man who should first discover it. Many elaborate and apparently thorough studies, with modern apparatus and skill, apparently proved that the syphilitic virus was ultra-microscopic, at least that it would pass through certain porcelain filters, yet the spirochete is by no means ultra-microscopic nor capable of passing a properly constructed bacterial filter.

By these remarks, we do not mean to be understood as disbelieving in the specificity of the spirochete pallida. In fact, we are personally incapable of expressing an opinion on the subject, although we possess a diploma from one of the best medical schools of the country to the effect that we are a competent bacteriologist. The diploma, not being truthful, is consigned to oblivion.

But we do wish to use this particular disease to point the general moral of the fallability of bacteriologic—or let us say micro-organismic—identification. Bacteria and protozoa may be identified, in theory, in five ways: morphologic peculiarities, staining reactions, chemic products of the living organism, gross appearances (including low-power microscopic appearances) of crops of the germ grown on culture media, inoculation experiments, agglutination experiments. Any one of these may be fallacious. While even a person of ordinary experience and not necessarily a botanist or zoologist, may, on simple macroscopic appearances, declare positively that a certain plant is wheat and that a certain animal is a grizzly bear, we believe that there is absolutely no bacterium and only a few protozoan parasites that can positively be identified by morphology alone. Staining properties are pretty nearly absolute with regard to the gonococcus and to the tubercle bacillus, provided that the leprosy bacillus and certain fat-containing non-pathogenic germs can be excluded. The time, color, and manner of growth of cultures are more or less distinctive for a number of germs. Inoculation experiments with production of the disease and recovery of the germ, are nearly positive, but negative results do not necessarily disprove its presence for a number of reasons. Agglutination experiments are not absolutely convincing and, indeed, it is already known that in some instances mutual agglutination may occur in related groups. The chemical products of bacteria differ according to the soil and temperature, etc., just as they do for macroscopic plants, for instance the cinchona which does not produce quinine in any quantity in the Carolinas, and the coffee plant whose flavor in America is very different from what it is in Asia.

In many instances, a combination of probable points of evidence, enables a bacteriologist to assert positively the identity of a germ in question. But this positive statement can be made only when experience of both technical and clinical nature has been in accordance for a considerable number of years and a considerable number of independent lines of research by numerous observers.

Given a disease of unknown cause, investigated bacteriologically by an inexpert bacteriologist, and it is almost a foregone conclusion that a germ will be isolated whose description does not correspond exactly to that of any previously known germ that may be accidentally present. Given a pure culture of a definite germ, investigated under different conditions by the same or different observers, and no two descriptions will exactly coincide. Entirely different germs may appear to be the same, and conversely, the same germ will develop different forms and reactions. Even a professional bacteriologist is relatively inexpert, when dealing with an unfamiliar germ. Authorities have described nearly a thousand different bacteria, not to mention fungi and protozoa. About 50 apparently distinct infectious diseases exist, aside from local conditions due to fungi, and including as one disease, various septic fevers clinically indistinguishable. Twenty-three general infections are pretty definitely assigned to bacteria, three to fungi, 10 to animal parasites of protozoan nature or to immature stages of helminths, twelve are of unknown cause, and several are more or less probably well known infections with symptomatology altered by local conditions. It is exceedingly difficult to make such statements in exact figures. For instance, we have included scarlatina and syphilis as due to discovered parasites, measles as of unknown origin, trichiniasis has been considered as truly a general infection as filariasis. Yaws has been considered syphilitic and bacillus capsulatus ærogenes infection as specific, while streptococcic and staphylococcic infections of different kinds have been grouped as sepsis. No two statisticians would agree in the count nor could the same individual, at different times, make the same distinction between demonstrated and claimed specificity. Very probably there are two quite distinct tuberculoses, and it is possible that the exanthemata are variations of the same infection, that mumps and pertussis are not specific at all but due to various infections of the respective regions.

Many bacteria, ordinarily non-pathogenic, are capable of producing disease. This is notably true of the

colon bacillus. We must remember that bacteriology is merely a division of botany and that, by a natural extension of terms it is practically applied to the zoology of many microscopic animals. The classification, particularly as regards genus and species of the microscopic animals and plants concerned in the production of disease and of analogous animals and plants widely distributed but not definitely pathogenic, is at present in a hopeless state of confusion. Moreover, parasitic organisms in general are degenerate, peculiar in morphology, often closely resembling widely different organisms and often lacking characteristic organs of closely related organisms. For example, the bindweed has its bracts, the morning glory its flower of flame, the dodder has no foliage leaves at all but is a convolvulacea, just the same. Now in the case of a complex organism like the dodder it is easy to trace its relationship to other convolvulaceæ and to explain its lack of leaves by its parasitic habits, but, in the case of a parasitic bacterium or protozoan, the minute size and lack of specialized organs renders it possible that utterly unsuspected relationships to other organisms exist.

AMERICAN MEDICAL ASSOCIATION IN BOSTON.

THE most notable feature of the recent meeting was the opening address made by Dr. Mayo, the President. Many matters vital to the physician were touched upon. Medicine, he declared, is becoming more and more an exact science, and this should come to pass as speedily as may be, for thus far medicine has been, of all the sciences, most laggard in the march of progress. Especially is it necessary that a science of therapeutics should be developed; it is not creditable to us that we continue, in so large measure, to be putting drugs of which we know little into bodies of which we know less.

Our giant strides of late years have been in the way of prophylaxis and sanitation; and we have been very successful in educating the laity in the causation of such diseases as malaria, typhoid, tuberculosis and yellow fever, and in the ways by which such diseases as these can be prevented.

Some abuses from which we suffer were dwelt upon by Dr. Mayo: the inadequate remuneration in life insurance work; the evils of lodge practice; the outrageous manner in which public service corporations make use of hospital privileges; the shameful way in which rich hospital patients have the surgeon to operate on them, or the medical man to take care of them as though they were charity cases; the fact that most hospitals have no physicians among their directors; the commission evil, by which the specialist divides the fee with the family practitioner in return for reference of the case. All these abuses have been rife among our professional forbears as they are among us; and our medical posterity, we fear, are going in like measure to experience them—unless some such body as the American Medical Association decides to do away with them. That is what the American Medical Association is for. All these abuses thrive, if not by our own connivance, at least by reason of our own complaisance; and they can be eradicated immediately a potential collection of medical men attacks them in good faith.

The sections devoted to medicine, surgery and the various specialties were most important, as our clinical columns during several months hence will attest. A valuable feature in these meetings is that the rural doctor meets the man of the laboratory and the world-famed writer upon professional themes—and finds him not so awful a personage after all; while the latter learns to appreciate the stamina of his bucolic brother.

Socially, and with regard to the good things of this life, the sessions were enormously successful. Our Boston colleagues were most hospitable. Boston cold, haughty, superior? Preposterous; likewise nonsense in the last degree. Boston is much maligned in such expressions. There never was such cordiality, such emollience; never were five thousand physicians, their families, and their sisters, their cousins and their aunts so warmly, so heartily entertained. The red cross badge was an open sesame to all things imaginable that were wholesome and enjoyable. The reception evening was most brilliant. Some one hundred of our Boston colleagues sang several concerted songs; and if their medical attainments are up to their voice production, they will do very well indeed. There was an excellent band; and dancing, too, of which many a graybeard took advantage, who had perhaps imagined his dancing years were over decades ago. And the Thursday evening "Pop!" And the teas in the new Harvard Medical School—most wonderful sight of all. This institution has certainly not its equal in the world. Nine enormous structures of white marble, built in the classic style, bound a vast space, in the midst of which were placed a band of many musicians. The thousands of visitors in holiday dress made a most picturesque appearance; it seemed indeed, as the French say, that the "whole world and his wife" were out enjoying themselves. At hundreds of tables these visitors sat while the young ladies of Boston served tea and ices. It was a wondrous sight, these many scores of bright, winsome gentlewomen, in pretty costumes, with red-ribbon shoulder straps, flitting about like—for further sentiments consult our bachelor confreres. They will expatiate upon the slightest provocation.

It is a pleasure to note that Dr. Joseph D. Bryant, of this city, was made president-elect.

Atlantic City, 1907.

VEGETARIANISM.

IT is an unpleasant aspect of cosmic life that all living creatures, from microbe to man, prey and feed upon one another. Nay, more than this, the process seems to extend far back of what we call sentient existence, back even to what we perhaps erroneously term inorganic matter. Let us begin with the granite in the hillside, which is made up of carbon, oxygen, hydrogen, nitrogen, and the like. In the course of æons does this rock undergo disintegration and become the soil in which plant-life may thrive. Indeed, even in the rock we will find sentient existence, animalcular, microscopic—but nevertheless manifestation of life is here found. In the soil, under solar influence, seeds germinate and thrive; and vegetation results. Then, as Paulson so well puts it in his introduction to the study of Philosophy, somehow (we know not the manner of it) under the influence of the "vital principle," concerning which we discourse so wisely, but of the nature of which we are absolutely ignorant, minute animal life appears, and in order that it may exist and multiply, subsists upon the vegetation about it. And so the field mouse thrives upon the grain. Presently there appears a larger animal who kills and eats the field mouse, in order that it may itself be nourished and exist. And thus does this cruel process in nature go on constantly, the stronger animal destroying the weaker. Thompson-Seton was criticized that in his stories his animals all died tragic deaths. But he quite rightly justified himself by the statement that such is the case in nature; that seldom does an animal die a natural death. This is life. The highest type of living thing—at least so we complacently hold ourselves—cannot escape this law of life. The cattle which we eat must suffer in order that we may subsist; they have to, for we are superior to them in this at least—that we know how to destroy them for our benefit. They are a great convenience for us, as well as a necessity. Their huge digestive apparatus can convert the grains of the field into a form which we find easily assimilable. We do not now kill the steer in the unpleasant fashion of our primitive ancestors; we simply relegate this business to certain of our brethren who are ready to undertake exclusively this indispensable function. But the principle is the same. It is Mother Earth's roundabout way of supplying us with the elements essential to our existence—the carbon, the hydrogen, the oxygen and the rest, which lie dormant in the great storehouse of nature.

We set forth here quite an obvious and fundamental proposition, but it is one which the vegetarian constantly ignores in his philosophizing. There is no use in ignoring or in defying the great and inexorable fact of life. Some vegetarian experiences are rather diverting as illustrating the extent to which a well-meaning citizen will go in a "logical course" based upon mistaken premises. There are those, for instance, who begin with eating no meats; presently they eschew eggs and milk, considering it a shame to deprive the hen and the cow of provender which is their own, and of which they should not in justice be deprived. Next, perhaps, the enthusiast is taken in hand by a missionary of "sun-kissed food." He eliminates everything that does not grow in the full sunshine. Clearly, potatoes and turnips are just as bad as a steak or a leg of mutton. A scientific statement or two are not here amiss. Rottermann, of Cincinnati, declares that most vegetarians have dilated stomachs and intestines, resulting from the accommodation of large quantities of food necessary to supply their wants. The powers both of resistance to great exertions, as well as the neutralization through the activity of organic cells, leucocytes, etc., the poisonous influence of disease, is much decreased, while convalescence is considerably prolonged." Swan, who has studied the *metabolism of a vegetarian*, finds that such diet is not calculated to produce a properly nourished and mentally and bodily active person. He finds that the literature advocating vegetarianism contains no accurate scientific analysis of the requirements of the human organism; and the arguments advanced in favor of such a regimen are either pseudoscientific or sentimental.

THE FAMILY DOCTOR.

IN a volume entitled "Home Thoughts," a series of papers reprinted from *The Evening Post*, there is one of a very emollient sort on "Our Friend, the Family Doctor." This writing flows evidently from a kindly and appreciative feminine pen. For instance: "A wife may plead with an obstinate husband, a mother argue with an imprudent daughter or a reckless son, and find that her efforts have no more result than that which spray may have upon a New England rock; but let the medical man get his hand upon the pulse or his trained ear over the lungs, and the whole face of things is changed. No more late hours, no more dancing in thin gowns, no more nightly revelling. It is a study worth pursuing, this yielding of the strong, this sobering of the frivolous, this checking of life's waste, at the bidding of a man whose only authority lies in respect for his profound knowledge and confidence for his truthful speech. If ever one needed a demonstration that knowledge is power, here it is."

Here, we submit, is presented a noble picture, and one which should be inspiring to the medical neophyte. Here are circumstances under which the character of the individual physician is his best, and at the same time his most paying, asset. In other kinds of work the assets may be incorporated from many

sources; "mergers" can be made whereby the strength and the skill of many individuals can be combined in ways oftentimes disastrous to the individuals whose resources have been appropriated. But the physician of character and stamina is, in such measure as he has these qualifications, master of his own output. When people are ill and near to death, they have no need of syndicated medical advice; they want the help of a doctor whom they love and trust, and whose thorax contains the heart of a man.

Here a defect in some medical temperaments may with advantage be considered. "Eagerness of research and thirst for provings have altered somewhat the course of medical thought," declares the genial writer to whom we have referred. In the work of some medical men investigation takes the place of pretty much everything else. "Men become specimens" in the eyes of such an one, who is "less eager to prolong the beating of a laboring heart than to know why it threatens to stop its work. Experiment, which teaches, is too dear to the discoverer, the opportunity of research too precious in his eyes, to leave room for ministry to the agony of hearts whose only disease is grief." Here, we think, is voiced an opinion rather prevalent among the laity; and justly so in many instances.

INSECTS AS DISEASE CONVEYERS.

THE very considerable part which insects play in the dissemination of disease has of late years been made manifest. It is *a propos,* the good old summer time, being now well upon us, to consider the manner in which the insects which are rife in our latitudes may convey germs.

Unquestionably the Koch bacillus is distributed by flies. No one can doubt this who has seen the photograph shown in the recent Tuberculosis Exhibition in New York City, depicting a nutrient plate upon which had been deposited a fly that had previously walked in the sputum of a consumptive. A glass cover confined the fly. The plate was at first perfectly clear; presently, however, colonies of bacilli perfectly visible to the naked eye developed along the tracks made by this fly. Unhappily some of our colleagues, supersaturated with enthusiasm, have jumped to the conclusion that the fly is the only, or at least the chief propagator of tuberculosis. It is, for many reasons, a very subsidiary source of tuberculous infection—especially because we have flies with us only a part of the year, whereas consumption is with us throughout the year and becomes contracted in one perpetual round. The physician should here most emphatically guard against this, as other factors tending to increase phthisiophobia among the laity such as is already rampant to so deplorable a degree. Unquestionably flies help greatly to swell the infant mortality rate, in cities, at least. There are few more congenial culture media than milk, especially amidst the uncleanliness which obtains in the homes of the very poor. This fluid easily becomes contaminated with the excreta of flies and with the noxious matter clinging to their feet. Tuberculosis is thus in a measure contracted by children. It is quite certain, also, that infantile diarrhœas are thus induced.

It is the custom to blame the venders of milk, from the dairyman to the retail dealer, for many of its impurities. To-day, however, thanks to the work of the Health Department and the County Medical Society in New York City, such impurities are rare; milk is now undoubtedly much more liable to contamination after delivery to the consumer.

Flies certainly disseminate typhoid, although there are, of course, other sources of this infection. Flies pollute food and drink by means of the excreta which they convey from dungheaps, manure pits and the like. Typhoid has with some fitness been termed autumnal fever. Many an urbanite has returned from his vacation stricken with this disease. Perhaps not all such cases are due to tainted wells. While such contributory factors as bad sanitation, wretched diet and lowered vitality are constantly with us, typhoid prevails mostly during fly-time.

Flies certainly disseminate cholera, and some cases of tetanus originate by this means.

The work of Reed, Gorgas and their confreres has made yellow fever practically as rare an entity on this planet as a lunar meteorite. They have proved beyond peradventure that the mosquito *stegomyia* is the medium of infection; that yellow fever can easily be prevented from becoming epidemic; and that the belief formerly held that the infection is conveyed from patient to patient by means of bedding, clothing and the like, is erroneous.

Unquestionably, again, the *anophiles* is responsible for malaria; nor will any one contract this disease who protects himself from the bites of this insect, which is a country and not a city bred variety of mosquito.

There are some who declare that mosquitoes spread leprosy; and it is quite possible that science will in the near future prove this hypothesis to be correct.

The bedbug has from time immemorial been obnoxious enough on his own account. It is now held—and no doubt correctly—that in smallpox epidemics, this disease is most rife in cheap lodging houses; "the houses in which bedbugs are found seem to furnish a steady supply of victims" (*Jour. A. M. A.*). Tubercle bacilli have been found in the blood of the bedbug. Metchinkoff believes that the bedbug forms an intermediate host or at least an agent for conveying intermittent fever, a disease very common in some

parts of Russia. Dr. Sirault, of our Department of Agriculture, finds that the bedbug (*cimex* or *clinocoris*) may live for many weeks without food. During the winter this insect becomes comatose and may live thus 100 days; some bedbugs have been known to exist eight months. And it is thus that the species is enabled to continue its existence from season to season, in lumber camps, summer residences, empty apartments and the like. Again, it is probable—and this is gruesome and unpleasant enough—the bedbug seems to have other host relations besides those with the *genus homo*. Evidently such relations have great potentiality for disease if these pests attack other creatures than man. Mice and rats, for instance, both living and dead, are attacked by bedbugs.

THE FOOD PROBLEM.

SLOWLY the searchlight revolves, and one after another of the sore spots in American business comes into view. Now it is the Chicago meat men who are having their methods exposed. For cold-blooded economy which stops at no consideration, the recent report of the President's two commissioners is probably unique. In the race for wealth the Chicago meat-packer has trained down to the last ounce. Old buildings, wretchedly paid help, the use of diseased and unfit animals, extreme haste, lack of cleanliness and care all help reduce the cost. Why should the meat-man care? He is counting only his receipts, and he has the safety valve nailed down on his financial craft and his boilers "chuck rosin and pine."

Of course with these examinations there is generally some exaggeration. Investigation is in the air, and investigators are playing to a very willing public. Again, butchering is a repulsive business at best, when done under most favorable circumstances. Place a man not familiar with the life in such surroundings, and naturally everything seems darker than it should. It is hard for a stranger to live the life of the workman and see his work as the worker sees it. He is apt to overrate its effect on mind and body.

It was the writer's privilege to investigate a large factory employing women which had been criticized in a recent magazine article. A young lady unaccustomed to such work, a stranger in a strange land, had lived in that city for a few weeks and worked in the factory. She painted it in sombre colors. She forgot that she was probably homesick and sensitive; that everything was naturally darkened; she had not been accustomed to such work, and it would have been hard for her in any surroundings. Trying to look at this situation, not from the standpoint of a New York girl who was doing unaccustomed work among strangers, but from the standpoint of the girls who actually do the work day by day, I found them happy and healthy. They liked their work, their employers and their surroundings. The workshops were clean and sweet, ventilation was good, the work was not hard, and the pay fair. They had nice dining-rooms, excellent gymnasiums, a lecture room, and ballroom. In fact, there was a strong desire to "get a job" there among the working people. So undoubtedly these pictures are overdrawn, perhaps unconsciously, but still overdrawn. A young literary man, full of nerves and tingling with feeling, drops down among butchers doing repulsive work and he sees their lives, not as they see it, but as it seems to him. Naturally the picture does not lose force as it is sketched by his hands and such a book as "The Jungle" follows.

Undoubtedly matters in Chicago need reforms, and we will have them. The packers will find it good business policy to supply clean goods prepared in a clean way. Good efficient work must in the end always be rewarded. The question of frozen meats is a broad one at the best. It is a problem how fit for food is meat that has been frozen and thawed several times, or has stayed frozen for a period. It unquestionably loses its sweetness and palatableness and is harder of digestion. In other words, it is less fit for human consumption. If, as a result of this investigation, local abattoirs would spring up, it would be a great help in the solution of the problem. Except as a saving of expense it should not be necessary to kill all cattle in Chicago; various stragetic points could be established.

Again comes round the old question, Why should we eat meat at all? We have had the recent picture of a nation going to war, performing marvelous feats of mind and body on rations composed largely of wheat and rice. In the march to Pekin, some years ago, participated in by American, Russian, English and Japanese soldiers, the grain-eating Jap ran right away from his white brothers in the endurance test; he traveled faster and he traveled in far better physical condition. The question arises, Was this due to his food? Undoubtedly as a nation we eat too much meat. Travel through the slums of a large city where the life is open and we can see the food of the people and we find Americans and the Irish spending their pittances for flesh, while the sturdy German and Italian buys salads, lettuce, green vegetables, etc. In fact, in many cities there has sprung up a race of Italian hucksters who cater to the wants of their people with surprising good vegetables and salads.

Let us remember this: the nation has to be educated that while good meats are essential from time to time, they should not constitute the basis of our diet; that our national tendency to kidney, liver and muscular troubles can be definitely traced now to over-indulgence in flesh food.

THE AUTOMOBILE FOR THE DOCTOR.

THE doctor is like the fireman in a large metropolitan fire department. He stands ready to respond on a moment's notice to any emergency in the community around him, from a railroad accident down to the minor sorrows of the nursery. Moreover, his regular patients are scattered over the country in various directions; so that in doing his business, he is dependent on some species of locomotion. The ideal form would be the "magic carpet" of the "Arabian Nights Entertainment," by which the fortunate possessor could waft himself away to distant points with loss of but few seconds.

There is no doubt that lacking such a magical source that the automobile is the ideal form of locomotion, if it is practical in its working. There can be no disputing this fact: the only uncertainty being the point that undoubtedly the automobile is in a stage of evolution yet.

This is the history of all inventions. Twenty years ago the hand camera came into use, but it was bulky, awkward, heavy, and expensive. Scarcely could a customer buy such an instrument before some new camera came on the market that made his apparatus a candidate for the junk shop. This continued for fifteen years, until gradually the improvements ceased, until now there has been no great improvement in such cameras for five years. They are efficient, light in weight, and far less expensive than the camera of ten or twenty years ago. This is a curious fact, that as a rule an improvement in an invention carries with it a cheapening in price. The article is generally not only actually better, but actually cheaper.

We are in the evolution stage of automobiles. There is a constant stream of changes being poured into the business every month. Some of these changes will stay; others will not. No one knows at the moment what the future holds.

The ideal power for automobiles is undoubtedly electricity, but as yet it has been a bitter disappointment. It can only be used for vehicles of limited area in travel with level ground to cover. Edison has been promising a battery that would supplant the use of gasoline, but at the present writing it has not been given to the world. It probably will come, if not from Edison, from some other electrician. When it does arrive in its perfected form, it will make old junk of all the present favorites in the automobile world. The passage of the free alcohol bill by Congress affords the trial of a new agent in propulsion, taking the place of gasoline. Its availability remains to be seen. Gasoline has many disadvantages, especially in its odor and its liability to explosion. The vapors of gasoline will travel some distance and meeting fire will carry the flame back to the parent source with remarkable quickness. Considering its dangerous character, it is really remarkable how few accidents have followed its universal use by all kinds of people. As yet the automobile is a rather complicated engine which has not the advantage of traveling on definite rails. As one writer says in the *Journal of the American Medical Association:* "If you don't like machinery and are afraid of getting grease on your hands in acquiring a thorough knowledge of every part of your car, and don't feel that you have the time to read up on the principles of the gasoline engine, don't be deluded into buying an automobile. Your success in using it will depend on the amount of knowledge you possess of its every part, for even the best constructed gasoline motor will at times give trouble. With a bit of trash clogging the nozzle of your carburator, or a loose commutator spring, or a short circuit in your wiring you will be just as helpless ten or twelve miles from home and the town mechanic as you would be if your car had dashed against a stone wall and converted itself into a scrap heap."

Again, the tire is a serious problem, both as to durability and as to cost. It makes the expense of keeping an automobile in the country more than that of a horse, unless we consider the wider extent of range of which the automobile is capable. Again, the manufacturers have hardly given the doctors' needs enough thought. The physician wants a car that is trustworthy the year round. It need not be too speedy, but it must be simple in parts and as practical in winter as in summer. It is well to use solid rubber tires for many reasons, although they decrease the speed and increase the liability of injury to the machinery. They are free from inflation, from puncture, from blowouts and pumping, and far less expensive. Again, the motor cycle is an excellent means of travel, the only criticism being its lack of dignity. It is efficient, very speedy, very cheap and very exhilerating. It can be operated at a cost of about four dollars a month.

With an automobile or a motor cycle, the doctor can cover five times the area that he can with a horse. As there are only twenty-four hours in the day, and the doctor must do his own work and at various points, it shows that the automobile has come to stay, and such a question as to its advisability for physicians' use will seem in ten years' time an absurdity. The ideal machine may then be on the market; it will be driven by electricity, have no complicated parts, its tires will be unpuncturable, and it will cost no more than a good horse and buggy.

That tuberculosis is sufficient ground for divorce was decided in a California court in favor of a wife who declared that on several occasions before the marriage she asked her prospective husband if he was perfectly sound and healthy, and was positively assured that he was free from disease.

BIBLIOGRAPHICAL

A Treatise on Surgery. In two volumes. By George R. Fowler, M.D., Examiner in Surgery, Board of Medical Examiners of the Regents of the University of the State of New York; Emeritus Professor of Surgery in the New York Polyclinic, etc. Two imperial octavos of 725 pages each, with 888 text illustrations and 4 colored plates, all original. Philadelphia and London: W. B. Saunders Company, 1906. Per set: Cloth, $15.00, net; half morocco, $17.00, net.

The second volume of the monumental work of this late lamented author, has been received, and it covers the clinical part of the field in an eminent manner. The text is clearly and interestingly described for practical purposes and the illustrations are profuse and to the point. No one can look through this work without being impressed that it has been prepared by a master-hand with a single aim.

In this work the study of inflammation from the surgical point of view is based on the tissue changes that follow the infliction of wounds. Contrary to the usual custom the subject of surgical bacteriology is introduced in connection with the etiology of inflammation, in which it is an important factor. The grouping of the topics differs somewhat from the arrangement usually employed, thus facilitating the study.

The section on Laboratory Aids is especially valuable owing to the increasing interest in hematology, urinology and kindred subjects.

The practical part of the work comprises a separate consideration of the injuries and diseases of each region. The anatomic method will appeal to the surgical clinician.

In presenting this new work the author has brought together the most recent and improved methods of surgical practice, and, with the aid of numerous cross-references to arrange these in a form readily available to the student and practitioner. Our readers will find the work worthy of their confidence. The physical part is in the highest art of the book maker.

The Practice of Gynecology by Eminent Authorities. Edited by J. Wesley Bovée, M.D., Professor of Gynecology in George Washington University, Washington, D. C. In one very handsome octavo volume, containing 838 pages, with 382 engravings and 60 full-page plates in colors and monochrome. Cloth, $6.00, net; leather, $7.00, net; half morocco, $8.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1906.

This is the first of a series of three companion volumes dealing respectively with Gynecology, Obstetrics and Pediatrics, and jointly, covering this whole cognate domain in the light of the world's latest and best knowledge.

The present volume, under the able editorship of Professor Bovée, furnishes a practical treatise on the diseases of the generative organs of woman, including the urinary system and rectum.

Its scope is intentionally much broader than the usual treatise or text-book on Gynecology.

To secure the advantage of maximum practicality; to present the vast and important subject in a manner which will make it of the greatest interest and value, not only to the gynecologist and surgeon, but to the large body of general practitioners, has been the earnest endeavor of all concerned.

The contributors are eminent authorities, and the volume is richly illustrated. Each book is complete in itself and can be purchased separately. We especially commend the work to the general practitioner.

A Manual of Materia Medica, Therapeutics and Pharmacology. With Clinical Index. By A. L. Blackwood, M.D., Professor of Material Medica and Clinical Medicine in the Hahnemann Medical College, Chicago. 592 pages. Flexible leather, gilt edges, round corners, $3.50; postage, 6 cents. Philadelphia. Boericke & Tafel. 1906.

This book contains in condensed form the résumé of the materia medica of all remedies in common use, their pharmacy and therapeutics, together with a chapter on prescription writing, and the management of cases of poisoning. It will be found a handy little volume for ready reference.

Whooping Cough Cured with Pertussin. By John Henry Clarke, M.D., author of "A Dictionary of Practical Materia Medica," etc. London. James Epps & Co., 1906. 16mo, 76 pages. Price, $1.

This little book contains the report of seven cases of whooping-cough treated successfully with pertussin, with some lessons to be drawn from the cases.

The one-seventy-millionth part of an inch may now be measured by an apparatus invented by Dr. P. E. Shaw, of the University College, Nottingham, England. Five years of labor was expended in this task. The invention consists of a very fine micrometer screw and a series of six levers acting in conjunction with it, which are suspended by rubber bands from a specially made frame and inclosed in a box. The apparatus is placed in a vault and surrounded with every safeguard against friction and vibration; but even then it is impossible to carry out successful experiments while there is traffic in the streets. Every factory where motive power is employed must be closed, even if it is some distance away. Even a draught is found fatal to successful measurement. Dust must be kept from the vault. The buzzing of a fly has suspended experiments until the insect has been disposed of. There are many uses for this instrument, which undoubtedly surpasses every other form of measurement in delicacy and accuracy. It is especially serviceable in measuring engineering gauges; it will act as a most delicate coherer for wireless telegraphy, and will promote the study of nature and possibly of molecular movement. The general principle applied is electric touch. If two clean polished surfaces come in contact the current can at once be made to pass through them and excite a telephone or other sensitive recorder. It has heretofore been impossible to measure the sparking gap of an electric current of less than 38 volts; Dr. Shaw's apparatus can measure one of half a volt. "If physicists desire to understand and explain nature's happenings it is imperative that there should be exact measurements of very small lengths and of extremely minute particles. Seeing that nature deals in such small quantities, it is useless to attempt to unravel her secrets without the finest instruments," states the *Evening Post*.

CORRESPONDENCE

THE DOUBLE A, B, C OF APPENDICITIS DIAGNOSIS.

To the Editor of THE MEDICAL TIMES:

Dr. McCrory's most excellent contribution to the subject of appendicitis, published in a recent number of the MEDICAL TIMES, leaves out one of the constant diagnostic features which were included in the "double A, B, C formula" that I arranged for my class at the college some years ago. This omission is so common, and the point is so definite and characteristic, that it might stand first in diagnostic importance. It is the double B. Board Belly. From the earliest moment of infection of the appendix, the abdominal muscles tighten in protective spasm, to make Nature's splint.

Here is the double A, B, C of appendicitis diagnosis:

Acuteness of Attack.
Board Belly.
Colic and Constipation.

The student quickly enough finds the exceptions after he has fixed the A, B, C in mind.

ROBERT T. MORRIS, M.D.

616 Madison Ave., New York, May 24, 1906.

The limitations of electro-therapy are set forth by Rhein (*Monthly Cyclopedia of Practical Medicine*, Dec. 19, '05). In many functional diseases its use is decidedly advantageous, partly because of the powerful mental impression and partly because it is certainly capable of altering the functional activity of nerves and muscles. On the other hand, many physicians employ it when it can do no good, and sometimes when it does positive harm. The agency used to be considered almost a panacea for all diseases; Rhein demonstrates the fallacy of this belief, but on the other hand indicates the ways in which it is valuable. Besides the X-rays, the faradic, galvanic, static, the sinusoidal and high frequency currents are useful; the difference in the effects of these currents is largely one of degree, with the exception of the galvanic current. Galvanism, when applied to the skin, causes local congestion, stimulates muscular contraction, increases glandular activity, exercises an electrotonic effect, produces a chemical and an electrolytic effect, influences osmosis and is valuable as a means of suggestion. The faradic current does little more than act as an irritant, causing an involuntary contraction of healthy muscles and stimulating the sensory nerves. The sinusoidal current has the same physiological qualities as the faradic, but produces little or no pain. The static current, when applied to a motor point, causes muscular contractions, acts as a counter-irritant, and produces a powerful psychic effect. Unquestionably the latter forms a large part of the cure in cases where electricity is helpful.

Potassium Permanganate as a hemostatic is advised by Schädel (*Deut. Med. Woch.*, Jan. 25, '06), It should be used as a paste by mixing it with vaseline in the proportion of 4 per cent. The bleeding parts should first be thoroughly dried. The application is only slightly painful; it is appropriate in epistaxis and in bleeding after the removal of warts and condylomata. The preparation may be preserved in an air-tight dish, as exposure to the air is apt to deteriorate it.

RETROSPECTIVE THERAPEUTICS

Pulmonary Œdema or Acute Respiratory, Congestive Catarrh.—In a number of cases giving the ordinary history and symptoms and physical signs of pulmonary œdema, and having the same underlying basis of enfeebled circulation through the lungs, we have noted the expectoration, not of a watery or frothy, but thin transudate, but of a quite dense, mucus material, raised with difficulty, and sometimes blood-tinged. In a recent case, under active stimulation—by ammonium chloride, about 6 grams in ten hours and 1.5 c. c. of fluid extract of digitalis in the same time—we have seen the expectoration cease and the physical signs—bubbling and finer rales, without evidence of true consolidation—abate, evidently on account of the reabsorbtion of the exudate, since expectoration ceased much earlier than the disappearance of the auscultatory signs.

While the nature of the fluid in the respiratory passages has not entirely escaped attention, we feel convinced that too little attention has been given to the distinction mentioned. We are inclined to believe that the matter has an intensely practical as well as scientific interest. The escape of a watery fluid into the air passages in cases of engorgement of the lungs, is in line with acute œdema of the tissues generally and is always an alarming, though not necessarily fatal occurrence. The danger is twofold. First there is direct interference with respiratory interchange of gases and this interference may be so gross as to be in analogy with drowning. Indeed it is more strictly a mechanical interference with respiration than ordinary drowning since, in the latter, the water does not typically—according to some authorities—ever enter the lungs, but asphyxia is due to spasm of the glottis. Secondly, pulmonary œdema is an alarming condition, apart from the immediate threat of asphyxia, because it indicates a depression of circulation or of the more recondite resistance of the body. For example, we have noted it with thymic enlargement, causing sudden death in a child apparently in good general health.

Thus, pulmonary œdema is peculiarly apt to be a terminal state and is often present when it does not occur to the physician to make the formal diagnosis, although he recognizes that the patient is dying.

The condition to which we have especially called attention may also be regarded as an exaggerated initial stage of broncho-pneumonia or even of lobar pneumonia not definitely infectious. There is the same predisposition by senile cardio-vascular changes, often the direct history of alcoholism, the exciting cause of an exposure to cold, and the mucous secretion, particularly if attended with diapedesis of red corpuscles, is precisely what is supposed to occur in the preliminary stage of a pneumonia excepting that the very magnitude of the exudation produces positive physical signs and fills the larger branches of the respiratory tree.

The question seems pertinent whether such a case as we have briefly described, would not eventuate in a broncho-pneumonia if, on the one hand, the vital resistance was great enough to prevent immediate death and if, on the other, the circulation was not promptly balanced and resorption was not secured?

Many abstruse problems in physiology and, there-

fore, in therapeutics, present themselves. How far do such conditions, of various types, depend upon the pulmonary circulation proper, and how far upon the systemic circulation throughout the bronchial branches from the aorta and back into the right ventricle? Experiments have shown that the pulmonary circulation itself cannot be greatly modified by differences in calibre of arterioles, as can the systemic circulation.

Is the indication to force more arterial blood through the lungs, or to draw the blood elsewhere? Shall we bleed the patient and reduce the amount of blood going to the right auricle, or shall we relax the arterioles generally as by amyl nitrite, or shall we produce similar effects by loose bandages of the limbs? Or shall we use extremely hot rectal enemata to drive the blood out of the portal area? Will wet or a dry cupping or poulticing or some form of rubefacient application to the chest do good or harm? Is the orthopnœa so frequently seen distinctly conservative, or shall we try to diminish the work of the heart and favor expectoration by gravity, by forcing the patient into a supine posture? In other words, how much of the additional discomfort due to the recumbent posture is subjective and how far does it really tend to overcome mechanical obstacles to the circulation? If the expectoration is tenacious, shall we soften it by steam inhalations? Shall we use the so-considered relaxing and nauseating expectorants or the opposite class? If, as is often the case, we cannot command an abundance of pure, warm air, shall we open the windows and increase the oxygen at the sacrifice of warmth—the patient usually breathing through the mouth—or is it better to avoid the inhalation of cold air when the air of the room is plainly vitiated?

We doubt whether all of these cases of dyspnœa, with fluid in the respiratory tree in conspicuous amounts, can be brought into the same category. Time is not afforded for careful examination of urine, blood pressure, etc., even physical examinations must often be hasty, while the demand of the patient for immediate relief is imperative. There is not even time for a leisurely weighing of theoretic pros and cons. In view of the considerable immediate mortality of such cases, the forcing of the patient into a supine position, against his subjective and, perhaps, correct, interpretation of the indications, may subject us to serious criticism. So, too, if we use depressant measures and death supervenes, we may at least be subject to self censure. Unfortunately, we must confess ourselves unable to solve the various problems involved, in advance, or even, in all cases, to reach a practically satisfactory solution in the individual case. Yet it is worth while to bear in mind the various conditions that may closely simulate one another and the individual differences in pathology that may be present.

Distant Signs of Intrathoracic Disease.—Œdema of the ankles or of the areolar tissues generally is a well-known sign, not only of essential renal disease and blood poverty, but of cardiac weakness and lesion. Cyanosis is an even more conspicuous general sign of cardiac weakness, often associated with true respiratory interference. The hectic of phthisis is known even to the laity and, as is usual in such cases, its importance is exaggerated. There is a facies in which cyanosis, œdema, and the muscular action of dyspnœa or, the expression due to such action at other times, make a quite distinct picture of cardiac lesion. Strictly respiratory dyspnœa is apt to present a slightly different facies, and yet the two are often confused or a double lesion renders a snap diagnosis impossible or fallacious.

Tracheal tugging is a well-known sign of aneurysm, though by no means absolute.

A. Gröber (Deutsche Arch. für Klin. Med., Vol. 82, No. 3 and 4, 1905) has made a study of certain signs of intrathoracic lesions, suggested by the well-known inequality of the pupils in mediastinal disease. But he directly contradicts the former teaching as to cause and location of the phenomena. As is well known, stimulation of the sympathetic dilates the pupil while stimulation of the motor oculi causes contraction. Paralysis of either produces a respective oposite effect, by withdrawing resistance to the action of the remaining innervation. Supposing the lesion to be in the mediastinum—or even in the apex of the lung acording to Gröber—so that the oculomotor nerve will be in a normal state, relative dilatation of one pupil may indicate stimulation of the sympathetic of the same side or paralysis (or paresis) on the opposite side. In the case of mediastinal disease, the limited area involved makes it practically immaterial which is the true explanation, but if we extend our research to the thorax generally, the physiologic interpretation must be exact or directly opposite conclusions will be drawn. While Eichhorst has upheld the theory of paralysis of the sympathetic with resluting pupillary contraction on the side of the lesion, Gröber points out the improbability of a paralysis unless there has been strangulation of a nerve by contracting scar tissue or marked pressure by a tumor. Inflammatory, traction or pressure irritation, of moderate degree, is much more likely to stimulate, in accordance with well-known general principles applying to all nervous structures.

Gröber's original test, a modification of previously known physiologic and pathologic pupillary reactions, consists in filling the lungs by a deep inspiration and then attempting to expire with the glottis—or mouth and nostrils—closed. Normally, the pupils dilate slightly with inspiration and contract slightly with expiration, depending upon alterations in intrathoracic pressure. In a normal individual, these reflexes are simultaneous and identical in both eyes. Whether unilaterally or bilaterally, a dilation when there should be contraction, indicates a homonymous intrathoracic lesion. A negative result obviously does not exclude a lesion, for one might exist without involving the sympathetic.

A related phenomenon exists in the case of the jugular and tributary veins, which normally become equally distended during forced, resisted expiration. In pulmonary disease this distension may be permanent or aparent only during the test. In either case, the application of the test allows us to diagnose a homonymous lesion. For instance, if the right vein is permanently more distended than the left, we may conclude that the right lung is affected. But if, by applying the test, a disproportionate distension of the left vein ocurs, we may conclude that that lung is

also affected. As in the case of the pupillary reaction a negative result does not necessarily exclude a lesion. We would also suggest that some allowance should be made for extrinsic factors, of an anatomic nature or due to local circulatory phenomena, especially when permanent inequalities exist.

Hay-fever will soon require the physician's attention, especially among patients who cannot leave their homes. This distressing and oftentimes—generally, we must admit—baffling malady may be successfully dealt with if treatment is instituted weeks before the invasion. We here submit suggestions and modes of treatment, some of which when properly adapted to individual peculiarities, may be successful. In no other disease, indeed, is it so important to consider the individual and his indiosyncracies. In all cases it is absolutely essential to determine the etiological factor. Wolner (*Northwestern Lancet*, May 1, '06) has relieved within an hour a patient of a very bad attack of hay fever, when all other means had failed, by applying ice water compresses to the face, renewing them immediately they became warm. This was kept up constantly for about three hours and off and on during six hours. There was no recurrent attack that season. A year later, the malady reasserted itself, when the same treatment was again effective for that whole season. No doubt the effect here was upon the vasomotor system. Knight presents some valuable notes (*Internat. Clinics.*, Vol. III., 15th series) concerning both hay-fever and asthma. The upper air passages must be thoroughly examined; we may thus demonstrate the origin of the disease by mitigating or abolishing bronchial symptoms by means of a cocain application. When no effect is observed, it is safe to assume that the upper air tract is not responsible. Colin Campbell recommends the intratracheal injection (in appropriate cases, of course) of menthol (30 grains) and glycerine (2 ounces); this enormous dose he administers at a single sitting. Immediate relief follows the first application. Several more may be needed to give permanent immunity. Gleitsman also believes that "many, but not all, cases of asthma," may be relieved by this method. Hubbard has secured prompt relief in his own case by injecting into his own trachea a drain of medicated solution. Atropin internally will counteract the nervous excitation which often supervenes; Kremer claims good results from the hypodermatic use of this drug (1-120 grain, repeated if necessary in twenty-four hours). McDonald claims forty per cent. of cures by cauterizing the septum in cases where there are polypi, septal and turbinal hypertrophies, septal spurs, and even by searing the Schneiderian membrane in cases where marked abnormalities are absent; as it is appropriate to cauterize wherever spurs and the like exist, this form of treatment should not be neglected. Dunbar has prepared an antitoxin which is said to allay, arrest, or modify the very annoying and exasperating symptoms. The serum must be renewed at intervals of a few hours, since the effects are temporary. This serum may also be given in powdered form. The fluid serum easily becomes contaminated and is then useless or worse; its hypodermic use has been abandoned because of the violent local reactions it excites. Mohr, who is himself a sufferer, has devised a nostril filter whereby the sensitive membranes are protected against the invasion of irritating particles. Fink has cured 95 per cent. of his cases in a few days by daily insufflations of aristol into the maxillary antrum; he believes that irritation of the trigeminus is the cause of the disease. Cocaine should be reserved *only* for diagnostic and operative purposes. Adrenalin is non-toxic, is followed by little or no reaction, and its continued use involves no danger of a drug habit; it may be safely entrusted to the patient, who may, however, not be relieved by it. The 1-1000 solution may be diluted with normal salt solution. Clark's solution (glycerin of carbolic acid, B. P., 1 ounce; muriat. of quinin, 1 drachm; perchloride of mercury, 1-4 grain) may be painted *over hyperesthetic* nasal areas. It must be repeated on the second and the fourth days; but three applications are required. Cocaine must be used beforehand; even then the application is painful. Thorowgood uses a spray of quinin 1 grain, water 1 ounce, to be used as a nasal douche or with syringe. Fulton follows this with an ointment of quinin 1-2 drachm to 1 ounce vaseline, repeated every three or four hours. The severity of the attacks depend largely upon atmospheric conditions. The personal equation must not be overlooked. Many of these patients are very impressionable and amenable to suggestive therapeutics.

Tetanus must be anticipated about the Glorious Fourth. It is a pity that the patriotism of our youth cannot be taken for granted, without having to be dissipated by means of dangerous explosives. In our issue of July a year ago we submitted some observations which we would reinforce by the following: Local treatment should be instituted at once on the open wound plan, with strong antiseptic solutions, preferably of hydrogen peroxide. Deep wounds, such as those of a nail or the tines of a hay-fork, or where the paper wad of a blank cartridge has been carried into the tissues, must be cleansed, made aseptic, pitilessly incised and enlarged if necessary, and packed from the bottom with gauze. The whole wound must be disclosed. In one case a physician was satisfied to dress a blank cartridge wound superficially and let it go at that; ten days later, the patient, a boy of eleven, developed tetanus. A surgeon was consulted, who, under chloroform, incised the wound (in the palm) and disclosed a gelatinous mass beneath the surface, which was curetted away. Under tetanus antitoxin this boy got well. The patient is to be kept in a dark room, absolutely quiet and with but one attendant; visitors must be absolutely interdicted. If the lockjaw will not permit food to be taken by the mouth, feeding may be done by the catheter introduced through the nostril or rectal injections may have to be resorted to. Chloroform or morphine must control the spasms. A few whiffs of chloroform may be given to mitigate the rigidity of the masseters in order that food may be taken. For other drugs much cannot be claimed. Eserine has been used internally or by hypodermic (1-50 grain every two hours), as also tincture lobelia, an initial dose of ten drops, increasing the dose by one drop every two hours. These drugs are supposed to mitigate the muscular spasms. The bromides, chloral, belladonna, calabar bean, hasheesh, curara and other drugs, have been recommended. No one is very enthusiastic about them. They may have to be given per rectum. Lumbar punctures have been tried, but hardly with success. The measure from which most is to be hoped is the injection of tetanus antitoxin. Un-

fortunately the disease has in many cases made so much headway (the incubation is about a fortnight and the initial injury is often unnoticed) that by the time the symptoms appear the bacillus has elaborated so much toxin that the antitoxin is ineffective. The appearance of pronounced symptoms generally indicates, sad to say, the beginning of the end. The serum must be injected early, here as in other infections. Still some good results have followed even after late injections; and, of course, they should be employed faithfully, as should any means, however desperate. An ounce of the serum should be injected for the first dose, and half an ounce every five or ten hours thereafter during the progress of the disease, until the symptoms are controlled. In New York City the Health Department provides serum for such cases with very specific directions; and this example is followed now in other of our large cities, supplies of antitoxin being distributed before the Fourth to the various hospitals and dispensaries, for use in emergencies. Of course, the serum is indicated imperatively as a preventive agency in cases of suspicious wound infections, especially such as are caused by *toy pistols and cannon and giant firecrackers;* practically no cases have resulted from roman candles, display pieces, torpedoes, paper caps or small firecrackers. In order to establish the diagnosis during the incubation cultures should be taken from the pus in the wound; moreover, as the tetanus toxin is contained in the urine, a very important test is the injection of urine from a suspected case into a susceptible animal, such as the white mouse.

The current theories of Uremia are criticized by Croftan (*Jour. A. M. A.*, Jan. 6, '06), who shows that neither anuria nor the variations of excrementitious nitrogen output suffice to explain this phenomenon. The two most important abnormal conditions which may be deemed characteristic are: A relative increase of the ammonia salts, both of the blood and urine, as compared with normal average values and with the circulating and excrementitious area; and a relative decrease of the urea, both of blood and urine, as compared with normal average values and with the total nitrogen of the circulating and excrementitious waste products. There may also be very toxic albumenoids or alkaloids in the blood or urine that might have an enormous effect without changing to any degree the amount or relative proportions of the nitrogen content. The most delicate tests for inorganic salts give little evidence that uremia is due to salt retention. There must be some poisons acting in the production of uremia. The decreased urea secretion is probably due rather to non-conformation than to retention. It is not increased in the blood as it should be if it were not merely eliminated, and the corresponding increase of ammonia is normally converted into urea. Disturbances of the liver and kidney are often concomitant; they would be found to be still more so if the liver were examined as thoroughly in every case of Bright's coming to autopsy, and if mild functional hepatic disorders were as easily recognizable as like renal disorders. Even if the kidneys primarily eliminate toxic matters some of the most important of these must pass through the liver before renal elimination. Even if the kidneys are primarily diseased more work is thrown upon the liver, not only in its disintoxicating function, but also in making up for the waste caused by a leaky kidney. The liver consequently becomes fatigued, its function to disintegrate albumines is impaired, and less urea and more incompletely disassimilated intermediary products of albuminous metabolism are thrown into the circulation. Though this may thus follow or accompany renal disease, it is still due more to hepatic than to renal insufficiency. Hence the importance of considering the liver in cases of uremia. Oftentimes, indeed, instead of stimulating the kidneys, uremia might be prevented by atending to those organs which threaten to fail. There should be rest for the liver—even starvation for a few days; all irritating substances should certainly be eliminated from the diet. Intestinal putrefaction should be reduced to a minimum. This treatment should be followed by mild stimulation, the carefully guarded use of salicylates, of bile acids, possibly of calomel and such dietetic and physical means as are available, all under careful supervision. Blood-letting is indicated for acute uremic attacks. A normal salt hypodermoclysis may replace the lost fluid; salicylate of soda may be added to the normal salt solution, or sodium citrate or phosphate.

Infection by air-born germs is not completely avoided, declares T. Hewlett (*Jour. Pur. Med.*, Dec., '05) by means of wet or dry sponges tied over mouth or nose, or by specially designed respiratory masks. Von Esmarck, of Gottingen, has proven the inefficiency of many of such forms of apparatus. By means of a spray the air of a given room was infected with a quantity of *B. prodigiosus.* The operator, having adjusted a mask, entered and remained in the room for five minutes, then left and took cultures from each nostril, the mouth, tongue and saliva. In every experiment with sponges or masks bacilli were found in the nose and mouth. But by putting cotton wool plugs into each nostril and rubbing a little vaseline around the rim of the nostrils, it was possible to keep the nose perfectly free from *B. prodigiousus.*

The abrupt onset of typhoid fever is considered by Manges (*Jour. A. M. A.*, Dec. 30, '05), who distinguishes two groups of such cases—those which really are abrupt, and those which seem to be abrupt and yet are actually not so. Among the latter are the "walking typhoids," in which the onset of the disease has been insidious and which receive medical aid only after the appearance of some such catastrophe as perforation or hemorrhage. Abrupt onset may be ushered in with chills, severe pain in the abdomen, head or other parts of the body, or violent delirium; or such cases may simulate appendicitis, nephritis, pneumonia, pleurisy, grippe or diphtheria with throat lesions. Such sudden onset must be due to the latent development of the typhoid bacilli in the organism without any marked clinical features until the disease has developed; or to the rapid development of the bacilli in the body.

Deep injections of alcohol in neuralgia are counselled by Ostwalt (*Presse Medic*), who had made 250 such injections in cases of tic douloureux without the slightest mishap or unpleasant after effects. The pain was arrested at once, and was cured in at least 90 per cent. of the cases. In about one-third of the patients there was recurrence after several months, but one or two more injections definitely dissipated

the pain. Oswalt injects 1 to 1.5 c. c. of 80 per cent. alcohol, to which .01 gram of cocaine or stovaine has been added, making the injection along the trunk of each of the branches affected, at the point of emergence from the bone. These injections are effective also in sciaticas and other neuralgias. Treatment of these affections is so often ineffective that Ostwalt's plan should certainly be tried.

Landry's paralysis is held by R. McGregor (*Am. Med.*, Dec. 9, '05) to be due to a toxæmia especially involving the anterior spinal horns; in very virulent intoxication the peripheral nerves may also be implicated in a secondary way and a multiple neurotic condition coexist. Such cases as these are very difficult of diagnosis. The very high mortality of Landry's paralysis contrasts, however, with multiple neuritis and anterior poliomyelitis. In one of McGregor's cases the attack seemed to follow vaccination; it was preceded by chilly sensations, fever, sweatings and vertigo, and the rapidly ascending paralysis within a week from its first appearance had involved all four extremities, the muscles of speech and deglutition, and the ocular muscles. There was also cardiac irregularity and dyspnœa, but no pain or tenderness along the course of the nerves nor fever after the onset. The patient slept and ate well. The bulbar symptoms began to improve after two months, but recovery was not complete until after two years, nor even then had he regained his former weight by thirty pounds. The glycerophosphate of iron and strychnine in small doses were the drugs administered.

Some ophthalmological phases of accessory sinus disease are set forth by Posey (*Jour. Eye, Ear and Throat Dis.*), who finds often severe disturbance in this relation with prominent symptoms; unless those of a sinusitis are well marked, its presence may be unsuspected. Even in acute sinus inflammation there is often no discharge, either because the pus is pent up, or because the disease is simply congestive.

The Opsonic Index is well defined by Meakin (*St. Bart's. Hosp. Jour.*, Jan., '06). The opsonic effect is the condition produced upon the bacteria (*not* upon the phagocytes) by "opsonin," whereby the bacteria are rendered a ready prey to the latter. Phagocytosis really depends upon the presence of this opsonin in the body, according to the investigations of Wright and Douglas. In some conditions the opsonic power of the blood can be raised by an innoculation with bacterial vaccine, which consists generally of a sterilized suspension of bacteria in water; but as a rule this risen opsonic power, or *positive phase,* is preceded by a *negative phase* of diminished opsonic power. The latter is usually very transient. No second dose of vaccine is to be given until the positive phase has supervened; else one negative phase would be superimposed upon another, with baneful results. In an acute bacterial invasion, such as typhoid or pneumonia, the patient is probably absorbing poison continually, and so inoculating himself; so that injections of bacterial vaccine are not indicated during such an attack. Wright and Douglas estimate the opsonic power of the blood serum by mixing together equal quantities of: blood-corpuscles freed from serum by washing first in a one per cent. solution of soda citrate in normal saline and then in normal saline; an emulsion of bacteria in salt solution; and the serum to be examined. This mixture is incubated at the body temperature for twenty minutes, and a film is then prepared and stained in the same way. By counting the number of bacteria ingested by each polynuclar leucocyte an average is obtained. This average is compared with that obtained in an exactly similar experiment in which the serum of a healthy man is substituted for the patient's serum. The average number of bacteria ingested under the stimulus of the healthy man's serum is taken as ninety, and the patient's opsonic power is expressed in terms of this. Thus, if the average number of bacteria ingested with the healthy man's serum be 5, and with the patient's serum be 4, the latter's opsonic value will be 0.8; and this is described as his "opsonic index." This process has chiefly been used in chronic tuberculosis of the lung, larynx, bladder, etc.; the chief objection to it is the difficulty of the test.

Psoriasis is related to rheumatism, declares Burnet (*Treatment*, April, '06). In many cases psoriasis cannot be traced to its source; oftentimes, however, a history of acquired or inherited constitutional disease can be made out, of which the skin lesion is but a single manifestation. The psoriasis of childhood practically always indicates a rheumatic condition. One or both parents of the sufferer are found to be rheumatic; brothers or sisters may have had "growing pains," chorea, attacks of acute sore throat, purpuric rashes, curious erythematous eruptions, or pleuritic affections—symptoms really pathognomonic of rheumatism. Treatment by means of the empiric use of arsenic and ointments has no sound scientific basis. Until we know the cause of any disease we cannot treat it rationally and scientifically. But if the psoriasis be attributed to rheumatism the line of treatment is clear. Anti-rheumatic remedies in full dosage over a prolonged period are indicated. The diet should consist largely of milk, fish, eggs and fruit. The heart should from time to time be examined, especially in children.

Nesteostomy.—Lempp (Arch. für Klin. Chir., Vol. 76, No. 1) treats of the results of nesteostomy (jejunostomy) from an experience of 65 cases in von Eiselberg's clinic. Most of the cases were subjected to the operator's modifications of Witzel's method for gastrostomy. Only four proved troublesome or intractably leaky. In case leakage occurred around the catheter, the latter was withdrawn until the fistula closed a little, when it was reinserted.

In 44 cases of gastric cancer, the experience obtained was as follows: Some form of surgical intervention is indicated even if radical operation is plainly impossible. Gastro-enterostomy is to be preferred if the pylorus alone is involved, nesteostomy if the cardia alone or both orifices are involved. Nesteostomy is also to be preferred if the patient is too weak to stand the longer operation of gastro-enterostomy, if the latter is technically imposible or if an internal gastric fistula exists. General peritoneal extension of the cancer contraindicates nesteostomy and the operation is especially indicated when rectal feeding lessens the suffering, or when vomiting is uncontrollable.

Eighteen cases of gastric ulcer, gave rather unfavorable results: 6 were cured, 8 died within 30 days, the other 4 did better than could have been expected

after gastro-enterostomy and the danger of duodenal ulcer is avoided. The author considers excision of the ulcer ideal and the operation of nesteostomy is to be selected in accordance with the principles given for cancer, also for hour-glass stomach if either cavity is inaccessible and for penetrating callous ulcer.

Five cases of gastric corrosion yielded negative results, although two lived long enough to show the value of the operation in some cases.

Leprosy as it exists in the Philippines is described by H. B. Wilkinson (*Jour. A. M. A.*, Feb. 3, '06). The exact manner of its propagation is obscure. It is rarely, if ever, transmitted from parent to offspring, and is with difficulty transferred from one person directly to another. There seems, however, to be a common source of infection to which members of the same family may be subjected, especially during early childhood. Skin examinations for the bacillus may be negative in the atrophic variety, though the organism may be found in the nerves supplying the affected parts. X-ray treatment was tried in thirteen cases. The applications were continued for ten minutes, at a distance of from seven to ten inches, upon the most affected portion of the body. The distance and time of exposure were occasionally varied, the intention being to approach as nearly as possible the point of burning, without causing a burn. When burns occurred they healed rapidly upon suspension of the treatment. Wilkinson had three cases; one of these died, but the autopsy and the microscope revealed no evidence of leprosy. Seven patients are improved, there being marked decrease of leprotic deposit and the advance of the disease being apparently checked. Three remain unimproved. The X-ray probably cures by killing the bacilli, the bodies of which are absorbed and thereby produce an immunity against the living organism, the process being analogous to the plague, in which immunity is produced by injecting killed cultures of the plague germ. Patients with localized massive leprous deposits are most rapidly improved; in cases with diffuse general involvement of slight degree, or of atrophic character, with only a few scattered germs, Wilkinson has not succeeded well.

Headaches are due to many causes; but chief among these is eye-strain. (*Virg. Med. Semi-Mo.*, Feb. 23, '06). On the other hand, all eye defects do not produce headaches, as in a patient with 0.50 D. of astigmatism in one eye and 0.75 D of astigmatism in the other, at oblique axes, accompanied with two degrees of night hyperphoria. In another similar case the headache and inability for close work would be marked. No internal medication will cure a headache due to structural ocular defect. On the other hand, spectacles will not, of course, cure a headache due to a specific gumma, gastric hyperacidity, constipation, pelvic or febrile diseases. Digestive disturbances are often caused by eye strain; let the sceptic use a pair of badly fitting cylinders and await the result. Eye-strain induces also insomnia, neurasthenia, irritability, migraine, general depression and light forms of chorea. The neurosis are becoming recognized as symptoms of eye-strain. Case: Patient, aged 30, had been treated by general practitioner during six months for headaches, without relief; she had suffered in this manner as long as she could remember. For ten years past they had been worse. She had spent several months in a sanitarium for nervousness. She had been blistered from the cervical vertebræ to the lumbar region for a "spinal irritation." Examination of refraction revealed 1 D of hypermetropia with 1.50 D of astigmatism in each eye; appropriate glasses have made her absolutely free of headaches and nervousness.

Appendicitis and gynecological disease are well differentiated by Bollenhagen (*Brit. Gynec. Jour.*, Feb., '06). There are several factors which may lead to error: There is the anatomical position of the appendix, which may be attached not only to other neighboring organs, but even to the uterine adnexa. Moreover, owing to the uncertain position of the appendix, the symptoms—even the seemingly characteristic pain—cannot be looked upon as definitive, since pains arising in the genital organs might be referred to the same place. Differentiation is possible, if it can be made at all, only by means of bimanual palpation. A wandering kidney may be at fault. Gynecological disorders which may be mistaken for appendicitis are: Torsion of the pedicle of an ovarian tumor, a condition in which adhesions are very frequent, especially in small tumors of the right ovary; interrupted extra-uterine pregnancy; and, most frequently, inflammations of the true adnexa, in which one has to depend entirely upon the case-history, since a diagnosis is hardly possible during the acute stage. Even in recurrent cases, in which one may have to do with large adnexal tumors, the diagnosis may be uncertain, since the pyosalpinx may be high up in the abdomen. In chronic cases the difficulty is not so great. Palpable lesions may be found in the right adnexa, while the pains will be referred to a supposed inflammation of the cæcum and the like. Sometimes by combined examination one may discover an exudate or other lesion in Douglas' pouch which may be dealt with per vaginam.

In puerperal convulsions Duke recommends that both venesection and transfusion of normal salt solution be carried on simultaneously, more especially in hospital practice. The bleeding removes some of the poisoned blood; the saline fluid dilutes and supplies the proper volume to keep up cardiac action and is a diuretic in addition. In cases where fits follow each other rapidly morphine may be injected in order to obtain an interval between convulsions, in which to do the venesection and the transfusion. This sad condition of eclampsia can often be prevented by keeping all pregnant women under observation for the three months preceding labor. The bowls, skin and kidneys should receive constant attention during this preliminary period.

Prostatic hypertrophy and diabetes co-exist more frequently than is supposed, states Posner (*Berl. Klin. Woch.*, Nov. 20, '05.) All cases of enlarged prostate should be examined for glycosuria; and *vice versa*. There is a special connection between arterio-sclerosis and diabetes, and in cases of prostatic hypertrophy there is usually arterio-sclerosis. If a diabetic complains of vesical troubles, these are usually attributed to the general disease. Conversely, an excessive secretion of urine or a high specific gravity in a sufferer from prostatic enlargement is regarded as due to the local condition. Posner reports a death from diabetic coma immediately after a prostatectomy.

MISCELLANY

The first Japanese woman who studied medicine in Germany is Miss Lada Urata, who has been made professor, *honoris causa*, by her own government.

The Medical faculty of the Paris University have planned an international technological encyclopædia, to be issued in ten languages, including "Esperanto," the new world language, which is supposed to have supplanted volapuk.

Oral sepsis is a matter frequently lost sight of, especially with relation to chronic gastro-intestinal disease; the point of entry in many cases of infection is to be found in putrescent dental conditions and in unhealthy tonsils.

The ghost of Hamlet's father, observes an exchange, made some remarks on the battlements of Elsinore which seem to have indicated that he had a visiting acquaintance with certain underground imitations of a Chicago packing house.

The Paris Medical Journal has been started under the joint editorship of Drs. A. A. Marden and E. L. Gross. The purpose of this excellent journal is to provide English-speaking physicians with a monthly résumé of the work of French physicians and surgeons.

Cheap thermometers are not a good investment, it would seem from the experience of an exchange. In a shop which was visited there were temperatures recorded sufficient to satisfy all tastes. Six of these instruments registered respectively 71, 68, 83, 79, 81 and 76 degrees.

The cultivation of bananas is being developed by the Mexican government. This excellent and very nutritious fruit—which in some parts of Africa is a suitable food in lieu of milk for little children—is to be made into a flour; and this product is to be shipped to the United States. No doubt there will be a good market for it.

A lubricant for urethral instruments is recommended by Strauss: 1.5 parts of tragacanth are rubbed up with 50 parts of water, and 50 parts of glycerine are added. The mixture is then sterilized by heat and 1-5 part of oxycyanide of mercury is added. The mixture is thick, non-irritant, does not attack the instruments, and makes them very slippery.

The Jungle, Mr. Upton Sinclair's novel, in which the Chicago beef industry has been stigmatized to the extent that it has caused legislation to be making in Washington, has occasioned this striking comment in the *Evening Post*: It is not an uncommon thing to dramatize a novel, but this is possibly the first instance on record where one has been enacted into a law. Virtually, that is what has been done in this case.

Milk licenses can be revoked on sufficient grounds by the Health Department of New York City, so the Appellate Division of the Supreme Court has decided. A certain milk company tested this question by suing the city to recover $30,000 damages for destroying its business by revoking its licenses. The Board contended that the company's dairies were found to be in a filthy condition, and its milk adulterated and unwholesome. The Court unanimously sustained its action.

A problem in heredity is suggested by the experience of three excellent but not well informed American citizens who asked for places at the recent John Paul Jones memorial services at Annapolis, on the ground of being his descendants. John Paul, however, lived and died a bachelor. Our secretary of the navy, with characteristic tact sent the tickets, but explained to the applicants that they were probably descended from one of the sisters of the great sailor.

Puerperal infection, states McDonald (*Am. Med.*, Feb. 17, '06) may be toxæmic, septicæmic or pyæmic. While the streptococcus is the most common organism, other types of infection may cause severe symptoms. The term puerperal infection should be meant to include lesions elsewhere than in the uterus, the nature and location of which should be recognized before any operative measures are undertaken. McDonald rightly condemns curettement in these cases.

The American Society of Tropical Medicine, states the *New York Medical Journal,* has just completed the third year of its existence. This society serves a useful purpose by bringing together men interested in tropical medicine, by promoting discussion, by publishing the results of original investigation, and by collecting specimens illustrative of tropical pathology, tropical conditions of life and tropical parasitology. Thus does this society do its important share in rendering life in the tropics agreeable and safe for the white man.

A Paris duel—no bloodshed—has recently been reported. Pistols were used, and coffee was no doubt partaken of amicably and mutually immediately honor was satisfied. Nobody was hurt, although excellent physicians—among them Doyen, the cancer specialist—were in attendance in the event of unforseen mishap. Reporters and photographers were grouped in advantageous positions to record and depict the more or less thrilling spectacle. Perhaps Dr. Doyen, who is up in that sort of thing, did the stage managing.

The Code of Medical Ethics has been declared by the Medical Society of New York State to be a merely suggestive and advisory guide. It, therefore, remains, as during the past quarter century, of no binding force within this State. There could have been no other result. Physicians who are gentlemen do not have to refer to a Code with regard to their conduct; and, concerning those who are not, no Code is possible of enforcement. Of the six thousand odd members of the Society, to whom the referendum ballots were sent, nearly one-half refrained from voting.

Albuminuria, declares Stengel (*Jour. A. M. A.*, Jan. 6, '06), does not by any means always indicate nephritis, unless it is abundant and persistent. Nor must the nature of the accompanying tube casts be too greatly relied on to determine the seriousness of the renal lesion; the occasional or even frequent appearance of hyaline casts need not cause apprehension. Centrifugation increases the likelihood of finding casts. The meaning of a trace of albumen is often exaggerated; frequent examinations are necessary to discover whether this element be constant or fluctuating. Hyaline casts are frequent not only in nephritis, but also in arteriosclerosis, gout, cardiac and hepatic disease.

SOCIAL EVIL DILEMMA.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

TO the enlightened moral sense of the physiologist and the physician who study the fundamental conditions of human existence, the greater odium of the social evil or promiscuous sexual accommodation is its actual propagation from person to person of infectious disease.

As the wheels of humanity run their allied associations in this world, it has turned out that the ordained pulpiteer of the Sunday sacred desk is ethically "not in it" as a practical disciple of social purity and sexual health. Christ, the exemplar by eminence, girded himself with a drying towel, and washed feet—typical of personal service for the Kingdom of God on earth, and of physical cleansing essential to forgiveness of sins. Paul had been a political murderer until his peremptory arrest on his way to Damascus, which made of him a great preacher instead of a cruel persecutor. St. Paul could bravely strike from the shoulder out at the social errors of the Corinthians and Ephesians: "How be it that was not first which is spiritual but that which is natural." The pulpit, which is enlisted in gauging the moral advancement of humanity has for the last fifty years won eminence in phrasing ideal platitudes of theology on lines or levels of the immaterial spiritual Kingdom of God, pictured by faith of rather far-away comprehension; but all policy of idealizing that is markedly obsequious to sentimental avoidance of ugly subjects, because of the main chance in popularity and salary, is apparently oblivious to the primary assets of the fleshly Kingdom of God on this earth, through which and by which the spiritual Kingdom here substantially is, and has its being. "Dearly beloved," exclaimed Paul, "let us cleanse ourselves from all filthiness of flesh—and of the spirit!" Flesh first, spirit next—since the spirit could not be cleansed while the flesh remain corrupt. Therefore, while our accepted and honored conservators of human morality elaborate the spiritual beauties of the beatitudes in phrase that coyly shuns the authorized restrictions of personal pollution in social vice, and thus mentally deceive themselves concerning radical essentials of personal salvation, the physician meanwhile who can clean his conscience by the sanitary process of purifying and healing and courageously devising preventive protection of society from physical pollution of sexual disorders, substantially takes precedence on the front lines of the world's practical reform for the betterment of the race.

Without a personal body there is no personal spirit. A clean spirit is not evolved from a sexually diseased and distempered body. Sexual disease haunts the avenues of sexual appetite and desire. These sources of corruption may be discerned and cleansed by the expert diagnoser and remedial. In eight cases out of ten they are adroitly concealed by the fast woman who pursues business for ducats, and by males—as a man of social standing once said to the writer—"I always gave back to some one all that somebody gave to me—give and take!" Nothing sears conscience so hard, or is so acutely resented as the scorch of venereal infection when nature craved a satisfaction or was correspondingly yielding a gratification. "Doctor, can you stanch this discharge by Sunday, so that it won't tell on me?" inquired a young woman with a gonorrhea, and to whom the writer had been called for medical aid. "Why do you say 'by Sunday'?" I inquired. Listen to her reply: "Because I can't afford to stay out of business. I expect a couple of young men in from the country next Sunday; I can stand a little pain if I can hide it, you see; but I can't get along without money. I'm afraid the boarding mistress won't keep me if I can't take company. But I never again want to see the man that did this nasty thing to me."

Such is the starter of the disease problem of prostitution. How many unsuspecting male victims might this uncured girl inoculate in a month? How many other girls or women might eventually become inoculated by this desperate young woman's dupes? Hence the venturesome and impulsive young, the seeker of experience, the ignorant and erring stand in imperative need of sanitary and beneficent protection by any system of sensible control, which can restrain the wholesale diffusion of quite inerradicable disease among population—a contagion contracted by seeking physiological response to natural physiological sexual appetite. For it must always be borne in mind, by the righteous as well as by the unrighteous, that the satisfactions of their seed or sex functions with which the human is endlessly endowed, either inside or outside of regulated matrimony, will ever voice in clamorous desire the purpose of the Almighty propagator of sexual union. As we have recognized in a previous paper, that in spite of all that we may religiously hope or reason or philosophize to the contrary, the transmitted appetite and impetus for sexual conjunction between male and female never has been and never can be abated while God peoples the earth by the desires and prowess of the sexual function, perpetuated in pleasure by parental impress in the fact of generation. One mission of the pulpit is to decry against sin. But suppression of the sin of spreading venereal contagion will require the intervention of law. Oratory has never arrested the spread of syphilis. Listeners to sermons that only dare to make allusion to "social sins" soon are taught that the subject is to be recognized by sugar coated suggestion only among nice people. Denounce if one feels that way—doing that tells other people what one says. A gust of hot air never yet has scrubbed a slimy cellar. Frowning upon legal agencies that compel men and women who are physically contaminated by the slime of prostitution —compel suspension from all risks of intercourse until cleaned and cured—is but assuming a mask of purity whitewash if meanwhile the ulcer of sexual rot is rankling in the veins and flesh of innocent women and children, and while families are decimated by crippling cachexias and tuberculous degenerations, while women are being numerously unsexed by surgical operations for removal of catarrhal ovaries and nondescript pus sacks, while children are robbed of hale and sanitary birthright or of even the privilege of being born alive, while physical stamina is being sapped at its roots, and bald-headed manhood prematurely uncovers the accidents of impetuous misguided sex-adventure among the haunted groves and caves of passional riot. How, then, stands the dilemma?

This shamefaced diplomacy of shirking moral responsibilities that hide social stench is only arrant sham and prudery, unworthy of all sincere pretence to sanitary valor and Christian civilization. Christ healed the woman of her offending internal plague of twelve

years' duration. If there is any available virtue in medical and religious sense, let it authoritatively and wholesomely go out to the arrest of social sexual disorders that promiscuously endanger the human family at large, the church family included—or else pull down the blinds of professional decency and of mimic stage poses behind the exotics of prudery. There have been some rather pretty exhibits of what was called "moral sentiment" against the recognition by law of the social evil by making registration of such women as are found in that life, and giving under certified conditions of clean health the civil right to pursue the avocation of sexual means of livelihood within limits. Objections to legal regulation were spread like some picture fan of deference for "the correct class"—objections to taking sanitary control of supervision of an insuppressible social condition of danger—meanwhile even our ever-valued religious circles being grilled by hot-house disorders through the accidents of natural propensity! How awfully uncomfortable it is to be just too nice to need any laws in a country like ours!

"Why commit the laws to recognition or license of what is sinful?" the opponents to control exclaim. "Why attack in open field instead of spying around the bush and hauling these unfortunates to prison among thieves and murderers? Why add a protective straw of respectability to the social evil by registration and legal inspection? Why have it known that a sick prostitute may be quarantined, as is done with cases of diphtheria and smallpox among decent folks?" But, we answer, the days for covert mischiefs are ending. The time is ripe for the square deal. President Roosevelt would be Roosevelt only were not that he is a man who "does things" for the betterment of all classes. The writer has had his sense of justice singed by the flambeau of the anti-control apostles of past years, who fought tenaciously for what they called women's rights to conceal her private diseases if she had any, and hence to offer and contribute burning punishment to all men who sought and accepted the gratifications of promiscuous service. At that time there lived a lady of eminence who published a monthly magazine, in Washington, D. C., devoted exclusively to combatting the sexual propensity of men and all forms of legalized registration and medical examinations and quarantine of women sexually diseased in promiscuous life, by which special examinations venereal disorders should be repressed for the protection and benefit of population. Her specious arguments induced the present writer to prepare a more just and logical rebuttal for publication in her devotedly edited journal. This offer of broader reasoning she returned to me unpublished because its doctrine was at variance with the avowed policy of her magazine. Its return was accompanied by a long private letter on the inhumanity of official surveillance and intrusion on woman's sacred rights to her person and liberty in the land of the free. Realizing that this woman champion chose to consider nothing except her chosen hobby, in a recoil of disgust my returned article and the over-ripened lady's letter were together committed to flame; but to-day I wish that I had saved her fastidious argument against any law that gave recognition to the social evil by the process of registration and regulation. The sainted lady was of the passionless type who contend that mankind should abstemiously train themselves to discount their sexual desires, control and subdue their animal nature by cultivating higher planes of ambition, etc., etc.—and that no encouragement of protection should be afforded them by stated routine examinations of public women for enforced cleansing from venereal disease—but rather let the fact of danger from contagion that lurked among promiscuous women naturally deter youths and men from exposing themselves to its risk in fast life! Suppose that line of eloquence was applied to most other sorts of evils?

Mrs. Butler co-operated with the Social Purity Societies of the world, she represented the fibre of strenuous persistence, she won the ear of reprehension, instigated anti-regulation conventions in the United States and England, hatched expressive protestations against laws that involved women sinned against by distempered men; these proclamations were backed up by the long roll of autographs in appeals to municipal authorities. She and her co-laborers speciously contended that enforced examinations of even the brothel prostitute by laws of personal discrimination was class outrage and indignity pathetically degrading to all civilized womanhood. It was furthermore contended by these good but inventive social purity apostles that any Continental system of license and regulation would operate adversely to social purification because of the inferential protection that evil-natured girls would dispose themselves to reckon on in event of venturing on the paths of fast life. Much of such reasoning would reverse its arguments as soon as the problem could be viewed in the light of liberal interpretation for the defense of the health and homes of the masses. For social and ethical integrity men whose broad insight, should have been sufficiently clear to face public error and to stem the tide of fastidious criticism, instead of shivering backward into frosty shadow to let the rot of sexual depravity sweep itself onward through the misfortunes of humanity. Mrs. Butler's fanatical crusade won popular victory against the St. Louis regulation régime, beat back with blackened eyes the proposed sanitary social reforms for Chicago, New York, Philadelphia and other overthronged cities; threw into comparative dismay the retreating sanitarians of the social evil—sanitarians who have been enthusiastic to excess in planning resistance to every other line of physical contagion except the most subtle and persistent propagated from venereal sources.

The hindrance of a needful reform for better protection of the present and future generations deserves to be sincerely lamented when youths of both sexes, young men and women, even unsuspecting wives, are unexpectedly inoculated with so grievous a form of contagion that is personally preventable. The situation is a lamentable travesty of sanitary science. Self-placated concession to sentimental repugnance should never disarm duty in any noble service for the betterment of human life and moral progress. The dilemma of this study not only merits energetic consideration, but active handling by intelligent brave minds. There are superior aims of purpose beyond the quibble about regular and necessary examinations of the physical condition of the public woman in the interest of her own welfare besides the much greater interests of the many who directly and indirectly come to grief through her. Once on the stage of fast life, there is

no hesitancy about trapping the young. Conscience is drowned with a bottle of wine. The winning of the dollar is the strategy of reconnaissance. "Old stagers" gloat over the conquest of the young and inexperienced. Shall our Bible class pupils and sensitive church organists have thrown around them no timely systematic protection against early but perilous indiscretions, roused into activity by the crave of sexual appetite, and which are greeted and gratified for a few shillings by the transplanted Continental courtesan, who by nature and education may have lead a shameless life quite from childhood? Heaven and earth!—no laws, no regulations for America?—while European towns are annually pouring their thousands of vulgar population into the lap of the United States for what they can get! A few years ago I had for a patient a youth from a prominent Sunday-school, who, with a fellow church comrade, had ventured a visit to a down-town resort. The second venture with the same girls rounded them out with an excoriating, degrading gonorrhea each. A few months later I was consulted for relief of similar affliction by a youth of refined instincts, who was a member of a Bible class of which the pastor's wife was teacher, in another neighboring church. This youth was entertained but one time by a smart sort of girl and the damage was started. The result was he abandoned his Bible class because he could not bear to look at his teacher again. A yet more serious case. A young woman came to this city for a position. She was also a Bible class pupil when at home. A stranger, she found a boarding house up-town which she supposed was nice. The woman who kept this house induced this neat, almost handsome lady boarder to take in sewing temporarily for a few families. A keen-eyed young man called often and got introduced to the new seamstress. For a couple of weeks his attentions were modestly avoided because he was a stranger. Presently, however, the housekeeper induced this girl to allow the young man to take her out evenings for some entertainment. In a week more he had "got the best of her," briefly one night after returning from a place of amusement. From the time of this adventure the young rake stayed away; the devilish work had been accomplished. In a few days this young women discovered she was acutely ill and did not know what to do. The woman who kept the house told her to go into a hospital, and as she had "the disease," she could then enter a certain house "where that kind boarded to make their living off of men." Hourly growing worse and in great mental distress, since her kind landlady had informed the girl that she could not stay there unless she had plenty of money, this child of scheme and misfortune started out to drag herself around the streets till she could come to some conclusion what to do. To go home, and so far, in her distressful and degraded condition, she felt was impossible. Her good mother then would have to know it—and her father would come to the city to shoot this man who had ruined her! As she wandered along, she saw my professional sign. Something told her to ring the bell and tell her troubles to one who could advise her in kindness. I found her burning with fever and inflamed with acute gonorrhea to the limit of her sensitive endurance. We concluded that the old woman had methodically assisted her rascally nephew to debauch this innocent and attractive girl, and through her shame, make a fast house recruit of her for the remainder of life—short undoubtedly. I advised her to defeat such downfall by trusting her mother. That her father would not injure her reputation at home by exposure of shooting the young demon who had pursued her to get her in disgrace and into the house of ill fame. That if she could manage to prop herself up in one corner of the car seat for the hundred miles she must ride, the cars would land her to the care and consolations of her best friend, her mother. That her mother should employ confidentially a careful physician to carry her to cure and enable her to resume her usual place in society—without the world, or even her own father, learning of the burning outrage through which she had come. The seducer of that girl had evidently had his debauch and training in a house of prostitution—and his hawk-eyed aunt was a procuress for that house of abominations. Let all girls who seek positions in strange cities hear of this case and take timely warning.

Mrs. Butler's crusade against legal regulation and sanitary control of prostitution in the United States and in European cities was a crusade of strenuous fanaticism against advanced decency of human nature and human habit despite the unquenchable antagonisms of sexual desire and mastery. Did the keen-witted postulates of Mrs. Butler's editorials and contemporary contributors unsettle American judicial reason—and for how much longer? What dilemma do we find confronting the population as a result? Consumption has increased at incomputable extent, cancer has increased at corresponding ratio, cutting operations for ovaritis and salpingitis have multiplied beyond decent computation—all of these the appalling proclamations of specific poisoning and degenerate blood. What has been the result? At the time of this social purity crusade against legalized registration and official control, it was estimated that there were twelve thousand prostitutes in New York City, and about one hundred thousand harlots in the United States. Boston, Philadelphia, Washington and San Francisco were then reeking with syphilitic pollution from prostitution. About ten thousand cases of venereal diseases were annually treated in the public institutions of New York, to say nothing of the numbers who sought private advice. It was authoritatively estimated that thirty thousand males were daily infected with venereal poison in the large cities of the United States, a large proportion of whom were residents of inland towns, whither they returned from city resorts to incidentally and eventually spread their share of sexual contamination. Since Mrs. Butler's crusade of hands off because of the sacredness of female privacy, the recruits to prostitution have outnumbered the declension and the deaths in the ranks. A recent author of prominence, Lydston, but two years ago affirmed that a later estimate of prostitutes in New York City puts the figures at twelve to fifteen thousand, with two thousand houses for promiscuous entertainment—and he calls this a low, a "veritable whitewash estimate." Other cities rate in proportion to New York always. Cities like Chicago, St. Louis, all the major and even minor cities, forge ahead in the strenuous revel of human passion.

The general police system of great cities has been egregiously demoralized by the graft of divy hush

money exacted from the unhappy creatures who need to ply their precarious "business," who sell their accommodations together with their desperate risks of disease involved. Few women remain long in the walks of prostitution for reason that without sanitary supervision, the hapless, erratic creatures in a few years discover that the vocation of the public woman is killing. It is the constant inflow of recruits, for one reason or another, that keeps the ranks of evil life so full. We observe by comparison of figures and the continued prevalence of venereal diseases, how manifest it is that the sexual purity crusade against legal control has won nothing for sexual morality and physical decency through consequence of exemption of public women from sanitary restriction by registration of houses and inmates. It requires more than a conservative precept and clean understanding to defend society from uncleanness. It requires the authority and the regulation of law to measure justice and erect barriers between the infection of the diseased and the safety of the well. I think it was about thirty years ago, in a public address to the doctors of the United States, that Prof. Samuel D. Gross said that nearly two millions of the population of our country were then infected with the poison of syphilis. It should be also noted that there is tremendous transition in this country. In their state of slavery the negroes of the South were under the control of superintendents of plantations; but in liberty the revel of libidinous propensity among the blacks has spread its promiscuous pollution to especial extent, running through minors and adults with very damaging effects.

While the exigencies of health demand legalized means to reduce the hazards of sowing to the winds by the female who trucks out physical rot, I earnestly favor getting the yoke of restraint also on the male who offers sexual comradeship at the door of physical entertainment by woman. The commonwealth has as much right to assume legal control over one danger of contagion as over another—and none is so corroding and persistent as the venereal. But the more definite means of prevention needs be deferred to a future study. To any resolute sanitarian it seems phenomenal how the awe of moral timidity was biffed into the hesitant consciousness of our medical representatives, into the saving prestige of the great church ministry, into the half-comprehending social forces of the day by the Spartan boldness of Mrs. Butler's social purity crusade of wordy dialectics, that purified nothing and nobody impure because it never cleaned out anything in need of actual cleaning. This half-hearted timidity is even yet sensitively placarded around the night chambers of public sentiment, while the riot of sexual diseases continues to sack the world of its physical stamina and sacred virtue, its physical vitality and moral innocence.

A few days ago I received a circular invitation to work with the "Philadelphia Society for the Study and Prevention of Social Disease." The officers are men of high social and professional standing. In more than one sense this honorable society starts out at least thirty years behind the logical demand of the day. There is no substantial niche of reform in its platform that was not strenuously urged for practical attention in a series of papers written by the present Dr. Swayze and published in the *Philadelphia Medical and Surgical Reporter* under editorship of the eminent Dr. D. G. Brinton, 1877. But "the sun do move"—and although so slow to rise from its sleepy pillow of misty deference, it should be greeted now with every encouragement to practical activity beyond the sterile past, which by routine passively prescribed rest and styptic injection for the concourse of gonorrheics, and patched up the disabled squads of syphilitics with iodides and mercurials. This new Social Disease Society has scanned along many fine lines of awakened comprehension, but unobtrusively veils from the direct repression that law should afford for positive leverage against the slippery wheels of down-grade infections. The hesitancy of this worthy society is seen in the following line: "At present neither the medical profession nor the lay public should be asked to sanction measures other than those of an educational nature." Now when this society educates population how to repress the gnaw of sexual appetite and how to obliterate sexual attraction when in unappeased condition, will it prove to have demonstrated common sense. It may be now reminded that it has in this barren respect merely assumed pose on the Mrs. Butler platform of thirty to earlier years ago. Another line is but a repetition of the Mrs. Butler fiasco: "Much will be accomplished if the laity, male and female, be informed of the need for early instruction in the home, especially regarding Nature's laws, and as to her imperative demand for chastity in both sexes." The plausibility of this is in the ear. Man and woman were not constituted to exhibit lives of sexual frost when woman menstruates every month and man's sexual endowment prepares him for intercourse every five days. Chastity is defined as the quality of sexual or moral purity, continence, virginity or celibacy." Now, if men could be continent or chaste without woman they would not need to marry. It may be inquired if any officer of this model society has not found it more comfortable to cohabit with a wife than to live in absolute chastity as a celibate. Way back in the fifties or sixties Fowler and Wells taught and published similar doctrines. Dr. Napheys, about the same time, in "Physical Life of Woman," earnestly taught the same doctrine. But all in all, no amount of preachment of this sort has cowed the functions of human nature, has obviated the evils of prostitution or prevented the spread of venereal contagion. It is all right to educate the family—but the result will hang more directly on the temperament ignited by the act of conception than on the truth of the precept. In all that is done to repress the spread of venereal contagion, more will depend on sanitary interference than on sermons and logic and lectures and pamphlets to the laity. In this circular cut and dried reference is made to the "importance of sexual health as a prerequisite to marriage." There is where even an arbitrary legal intervention would do much of its best work. If no prospective or actual husband was ever trapped by venereal infection, it is reasonable to expect that no wife will ever suffer in her own person because of that disease—the security turns wholly on the "IF." The contingency more generally hinges on whether or not the youth or the ante-nuptial candidate has at some time or in some emergency of experience by which he unexpectedly received a sting which could not be entirely extracted for years to come, and which would also infect the tisues and blood of inno-

cent wife and children. If that venture for sexual relief by the young man could have met a clean bill of fare instead of a foul one—even by the force of law—what a world of trial and mental tribulation would have been escaped. The fact of an innocent wife and a twain of innocent children being defended from a life scourge by the interposition of legalized authority over the woman who followed the service of the harlot, is of incomparable value above that of shielding a thousand inmates of the brothel from timely physical inspection, or being forcibly "laid off" in hospital at industrial employment till safely cured. Again, were some such process put into active practice it of itself would deter many girls and women from committing themselves to the pursuit of prostitution. Keep all public women sexually clean from infection, and there will be no more men inoculated with poison with which to perchance infect other women. Law for the public defence is the only solution of the dilemma—but how?

1726 North Twenty-second Street.

PREVENTIVE METHODS IN MEDICINE.

BY J. HOWE ADAMS, M.D.

THE Chinese pay their doctors only when they are well. This would be good policy for more civilized nations, not that the doctor tries to keep his patients sick, but if he can see them frequently, he can check or ameliorate various baneful conditions. This plan modified to an extent has been adopted by the hard-working president of an accident insurance company. Breaking down from overwork, he has engaged his doctor to call on him every two weeks throughout the year, look him over, decide on his physical condition and whether he is working too hard.

While it is the province of the doctor more to care for the sick and cure disease and relieve suffering, yet he must know the best means of avoiding or destroying those causes which produce disease. In fact, Billings has placed such emphasis on hygiene that he has said the chief value of a prescription is often to methodize the mode of life of the patient and to remind at frequently recurring intervals the regimen which has been ordered with it. As the country grows more densely populated these problems increase.

According to the law of Flourens, the period of life of an animal is about five times that required to perfect the development of its skeleton and unite the epiphyses with the shafts of the long bones. This would make the life of man physiologically about one hundred years, yet David, the psalmist, said twenty-five hundred years ago: "The days of a man are three score years and ten, and if by reason of strength they be four score years, yet is their strength, labor and sorrow." No record of the duration of life in ancient Greece and Rome exists, but we know it is greater now than in the Middle Ages, for war and pestilence played great havoc.

Heredity does not play so great a rôle in the causation of disease as formerly. It is the growing belief that the tendency to disease is inherited rather than the actual seeds of the disease. Again, heredity is a matter in which the doctor is but little consulted at best. The propriety of a proposed marriage is rarely left to the physician unless for ulterior motives. There are three excellent rules to remember, however, in this connection: (1) No one in the temperate zones should marry under twenty years of age; (2) marriage between persons with the same tendency to disease should be avoided, especially if they be relatives: (3) persons with well-marked taints, such as syphilis, tuberculosis, etc., should not marry at any time. Unfortunately, however, the physician can only have a general influence; he has no actual power to prevent such unions.

Of all the preventable causes of disease, impure water falls most naturally under the doctor's care, especially in suburban and country towns. In a chemical sense, all water as found in nature is impure, for it contains inorganic salts and organic matter as well. The borderland between pure and impure water is hard to settle or define. The water supply should always be suspected where diarrhœal disease exists in a community, especially where the outbreaks are sudden and simultaneous. The presence of a specific germ is most difficult to determine, while on the other hand nitrogenous organic matter in decomposing form is dangerous, but it does not necessarily produce disease. Water impregnated with sewage, while revolting to the imagination, has been used without serious damage for a time. So the problem has various phases.

The chemistry of water analysis is not at all easy; in fact, it is a serious problem, far beyond the resources of the average physician. Yet the physician should be able to make a rough analysis on occasion. Water polluted with decaying organic matter generally has a bad odor which can be detected by filling a large bottle with the suspected water and shaking it well.

The danger of impure air, like that of impure water, is that it introduces into the system organic material which tends to disease production. As a rule the gaseous impurities in the air are offensive to the smell rather than actually dangerous, although certain gases can produce disease. The problem of ventilation falls under this category; it is a question that every physician should study carefully.

After all, the question of ventilation resolves itself into the problem of getting an adequate supply of pure air. But the test is often a severe one, for the impurities of the air are largely derived from the human body itself. These impurities are ammonia, sulphurretted hydrogen, carbonic acid and sulphide of ammonium. In adition there are various unstable organic compounds which are very prone to decomposition. For practical purposes, the degree of impurity is estimated by the amount of carbonic acid present in the air; this has led the public, and even the profession, to believe that carbonic acid is the only dangerous adulterant. This is not true, for carbonic acid is not injurious to health unless it is found in much greater proportion than is usual in habitations and halls. Its real value, however, depends on the fact that it is usually present in direct proportion to the amount of really dangerous impurities present. It is easy to estimate the amount of carbonic acid present, so that it serves as an index as to the organic matter.

We must adopt some standard of permissible

purity to determine whether a room is well ventilated. This standard is generally a condition of air which in a person of normal smell entering from the open air produces a faint odor musty and unpleasant. The air of such a room will show that the amount of carbonic acid present—that is, excess of this acid over the amount in external air—will be between two and three parts in ten thousand. Yet the amount of carbonic acid in normal air varies from two to five parts in ten thousand. Still it is well to adhere to the idea that the organic impurity of the air is not perceptible to the senses until the total carbonic acid rises to the proportion of six parts in ten thousand, as pointed out by Dr. Parkes. When it reaches nine parts the air is close, when it is above one in a thousand the air grows decidedly unpleasant.

Taking two parts in ten thousand as the permissible maximum of carbonic acid impurity, we find that the amount of fresh air which must be supplied for each person per hour is three thousand cubic feet. Pettenkofer takes three parts; here only two thousand cubic feet would be demanded. Either standard is an excellent one, although there is no definite knowledge that carbonic acid in larger amounts is actually harmful.

The problems now arise in ventilation as in any plan of ventilation, as follows: (1) What are the effects produced upon the inmates? (2) Are there unpleasant odors in the building? (3) What percentage of carbonic acid impurity is present? (4) What number of cubic feet are introduced and removed per hour? (5) What is the character of the fresh air supply as to purity? (6) Does it come from the cellar or other rooms or from a foul areaway? To test this latter point, use the fumes of nascent muriate of ammonia produced by exposing a cylinder of common blotting-paper moistened with dilute hydrochloric acid, applying it to the vapors coming from a crumpled fragment of the same paper moistened with common aqua ammonia placed within the cylinder. The process for carbonic acid determination is easy and can be learned in a short time, so it is not given here, space not permitting.

The basis of all plans for ventilation depends on the air supply. It is not enough to put in tubes or openings for the escape of foul air unless corresponding inlets are provided. Therefore it is all important to examine the flues, openings and ducts intended for the fresh air supply, studying their size and position in reference to the work they are intended to do. The correct size for flues and registers can be found for a given room by dividing the number of cubic feet of air to be supplied per second by the velocity in feet per second which the air is to have in the flue or opening, remembering it is well to err on the safe side by having shafts too large rather than too small. If the fresh air register is so placed that the aid is apt to strike the occupant of the room, the velocity of this current should not be more than one and a half feet per second. It will generally be found best that the velocity of the air in the flue shall not exceed six feet per second. It is better to calculate on the number of people to be supplied rather than the amount of cubic space.

Billings gives the following methods of calculation: "What should be the number and size of flues and registers for fresh air supply for a hospital ward to contain twenty-four beds, the ward being a rectangular pavilion, with windows on opposite sides? Here the room is occupied all the time, and the supply of air should be one cubic foot per head per second. This should be 24 cubic feet per second. The velocity of current at the registers should not exceed three feet per second, better only two. This requires from eight to twelve square feet of clear opening in the registers. If we place four on each side of the room, each register must have one square foot of clear opening at least; the air velocity should not exceed four feet per second, and therefore the area of each flue should be about nine by twelve inches. Take a schoolroom containing forty-eight pupils. Here the room as a rule is not occupied more than two hours at a time. The air supply, according to Billings, may be put down at thirty-five cubic feet per head per minute, or twenty-eight cubic feet per second for the whole. The velocity in the flues may be put down again at four feet for the whole, hence we need seven square feet area of flue or seven flues, each having one square foot of area. Billings does not believe that there are twenty schoolhouses in America which have fresh air flues of sufficient area; the deficiency being made up by leakage of the outer air through cracks around the windows and directly through the wall; also by the passage of air from the central hall into the room, coming primarily from the cellar. As a rule the velocity of the air in the foul air registers is greater than in the fresh air, since there is no danger of its causing draughts, and consequently there is no need of the outlets being larger than the inlets to allow for the expansion of heated air. On the contrary, if the outlets are too large, the foul air flues may work backwards and become inlets, hence this rule of making everything larger than is necessary is not a good working rule for outlets and chimney shafts.

But after all the merits of a plan of ventilation depends more on its method of distribution than on its volume. Chemical analysis of air from different parts of the room can be made, or the use of nascent muriate of ammonia will show the direction taken by the incoming air. Carbonic acid gas while heavier than air, does not sink to the floor, but, according to the law of diffusion of gas, is found equally diffused throughout the room.

Good ventilation is not cheap, unfortunately, and in a cold climate satisfactory heating, good ventilation and cheapness make a hard combination to supply. If it comes to a question between good heating and good ventilation in a cold climate, it is better to supply good heating.

The bad results of poor ventilation are not immediately seen at first, for the power of the human organism to adjust itself to surrounding circumstances is very great. Yet this power is deceptive, for such air will produce disease and shorten life. Phthisis, the great white plague, is the commonest disease of lack of air space and distribution. But other diseases are found in the respiratory tract, both acute and chronic in character.

The impurities due to sewer gas should be prevented absolutely and not left to ventilation. Ballard has suggested a good working rule in this connection as to the noxious quality of sewer gases; i. e., "it is that exposure to the offensive effluvia causes bodily discomfort or often functional disturbance, contin-

uing or recurring as the exposure continues or recurs, and tending by continuance or repetition to create an appreciable impairment of general health and strength, to render those exposed more liable than others to attacks of disease and more apt to suffer when attacked and in the more serious forms to the direct production of disease and the shortening of life."

The symptoms due to offensive effluvia are constant in character, as pointed out by Ballard. They consist of loss of appetite, nausea, headache, giddiness and adapts himself to the customs which the with diarrhœa and vomiting. But as a rule these symptoms are due also to overcrowding, poverty, collection of filth, etc. The law goes farther than medicine, for it has been decided in the case of Rex vs. White that "It is not necessary that the smell is unwholesome; it is enough if it renders the enjoyment of life uncomfortable."

The fourth element in preventative medicine is generally regarded as climate. Man adapts himself most readily to all extremes of climate, and if he exercises care he can do about as well in one climate as in another if he preserves his care and thoughtfulness and adapts himself to the cusoms which the inhabitants have learned to be good for themselves. It is hard to define climate, but it can be roughly classified as the "sum of meteorological influences, the most important of which, as regards health, are temperature, humidity and wind. This is too wide a question to discuss in this paper, beyond saying it is scarcely yet on a scientific basis.

We are told by the advertising agents of the various food products that we are what we eat. It is the general consensus of opinion that while the raw food in America is good, the cooking is bad. The frying pan, hot pies, soda bread, fried food swimming in grease, are all agents to shorten life. It is regarded as rather discreditable for a man to study his food; he is classed as a glutton or an epicure. This is unfortunate, for no more vital subject can be studied by a man. Another error is that disease is due largely to overeating and that abstemiousness means health. Flint in his excellent article on "Food in its Relation to Personal and Public Health," says (Billings): "Physiology, experience and common sense are alike opposed to these popular notions relating to food. Conditions for perfect health are first a sufficient appetite; second, the gratification of normal appetite before the want of food reaches the abnormal degree expressed by hunger; third, the satisfaction of the appetite by an adequate quantity of food. These conditions of health are fulfilled by compliance with instructive provisions for alimentation. But it will be asked, Is appetite infallible as a guide in dietetics? Following it as a guide, is food never taken beyond the requirements of health? I answer, It is a reliable guide under normal conditions. The inevitable circumstances of life are often not altogether normal, although producing no distinct morbid affection. Experience teaches, for example, that in a state of fatigue or exhaustion which is not a normal state, inconvenience may arise from the full gratification of appetite; that if unusual exertions mental or physical are to follow, a hearty meal may cause disturbance; and other examples may be added. Irrespective of abnormal or disturbing influences, if appetite be not infallible, it is at all events more reliable than a rule based on theoretical ideas, popular notions or purely physiological data. Moreover, it is not intended that the quantity of food should be accurately adjusted to the needs of the economy. To do this is impossible, and therefore it is necessary to elect between the risking of taking either too much or too little food. Which is to be preferred? Undoubtedly it is far better to incur the risk of taking too much than of taking too little. Nature provides for a redundancy, but has no provision against a persistent deficiency — *ex nihilo nihil fit*. As an ample supply of alimentary principles is indispensable to nutrition, and inasmuch as the supply cannot be made to contain precisely the needed amount of the different alimentary principles, we may say that a superabundance of food is a requirement to health.

"As in appetite we have a guide in respect of the times of taking food and the quantity to be taken, so taste is a guide in respect of the kinds of food required. The discrimination of food with reference to the wants of the system is the evident purpose of the sense of taste, and the enjoyment connected with this sense was designed to afford a security in addition to appetite for adequate alimentation.

A doctor should have a good general idea of cooking and a short course in the culinary laboratory would help him greatly. The well-known Mrs. Rorer has given many courses in medical schools.

The habitation is the last great division of this subject which we consider in this paper. The sanitary inspection of a house should include its site as well as the building itself. The main characteristics of the site are its dryness, the presence or absence of organic matter in the soil, and its porosity. Some soils contain thirty-three per cent. of air; in fact, all dry soils and rocks contain much more air than is commonly supposed.

Residence on a damp soil will produce diseases of the lungs, especially phthisis. The rise and fall of the soil water has been studied by Peltenkofer in typhoid fever. The subsoil water should be at least five feet below the foundations, yet this is often hard to obtain.

In a good system of house sewerage, all pipes and traps must be easily accessible for inspection for the following points: (1) Are all the pipes, joints and connections air-tight? (2) Is the soil-pipe well ventilated, or has it dead ends? (3) Is the communication between the soil-pipe and the street sewer uninterrupted? (4) Are the pipes properly trapped? (5) Is the water-supply of each closed entirely shut off from the main supply to the house by cistern or tank? In old houses it is hard to get this information, and it may require the services of a skilled mechanic to obtain access to the system. We cannot in our space go into details in this matter, beyond stating that the principal dangers to health from house sewerage are due, first, to the passage of air from the general system of sewers or from a cesspool into the house by the soil-pipe and its connections; second, to the generation of offensive and dangerous gases and organisms in the soil-pipe itself and the passage of these into the house; third, to leakage of soil-pipe causing contamination of the water-supply either by improper connections of water-pipes with water-closets or slop-hoppers or by contamination of

wells, cisterns or tanks with sewage or sewer gases (Billings).

The main points of a good system are the following:

1. All soil and waste pipes should be extended up to and through the roof, and be freely open at the top. The extension of the soil-pipe should be full size—i. e., from four to six inches in diameter.

2. There should be a fresh-air inlet in the house sewer just outside the house, and between this inlet and the main sewer should be a trap so arranged as to permit of inspection. This prevents the ventilation of sewers through the soil-pipes. If a perfect system of sewers, uniformity of house-connections, and uniform height of houses could be guaranteed, this inlet and trap would not be so necessary, although even then it would be useful.

3. Every water-closet, wash-bowl, bath-tub, sink etc., should have a trap placed as close to it as possible. This trap is desirable, whether the discharge be into the sewer system or not. For example, a kitchen sink, the pipe from which passes to the outer air and discharges there, should be trapped, for this pipe is foul, and if it be untrapped will act as an air-inlet.

4. The nearer to the soil-pipe that the fixtures can be arranged the better. It is especially desirable to avoid the necessity for long horizontal waste-pipes from stationary waste-bowls and from bath-tubs.

5. Bell traps, D traps, bottle traps, and mechanical traps are objectionable. The S trap is, upon the whole, the best, but it should be provided with a vent-pipe to prevent siphonage.

6. The best kind of water-closet for general use is probably some form of what are known as the wash-out closets. They are made in one piece of earthenware, have no machinery inside them, have a quantity of water in the basin into which the excreta drop, and do not require a separate trap beneath them. Each closet must, however, be carefully tested by itself: a very small warp or twist produced in the baking may so interfere with the siphonage as to make it practically worthess, and the basin cannot be altered or repaired. Where there are no children, and it is certain that the fixtures will be used with reasonable care, valve closets may be used.

7. Water-closets should always be flushed from a special tank provided for the purpose, and never direct from the main system of water-pipes. The flush must be large and rapid, and this requires a large supply-pipe, and for many forms of closets a flushing rim. Whatever be the form of closet, it should not be encased in a wooden box or closet, as is usually done, but it should stand freely exposed to light and air. Sanitarians commonly advise that water-closets should be located in outer walls and have an open window for ventilation. Such a position is usually impossible, and is not specially desirable in our climate. The room should be ventilated in such a way that the tendency of the air at the door shall always be from the house into it. This is to be effected by a shaft passing through the room, up and through the roof. It is well to have this shaft take its air supply from just behind the closet or from beneath the seat.

8. No overflow pipe from any cistern or tank except the one used for flushing water-closets should be connected with the soil pipe or sewer. Trapping such an overflow pipe does not prevent the danger.

9. Increase traps placed inside a house are of doubtful expediency. If they cannot be placed outside do not use them at all.

Remember that a cesspool beneath a dwelling or near its cellar walls is always dangerous, for it is practically impossible to prevent the passage of gases from it into the house. A cesspool is dangerous in the country, but in the city it should not be allowed to exist.

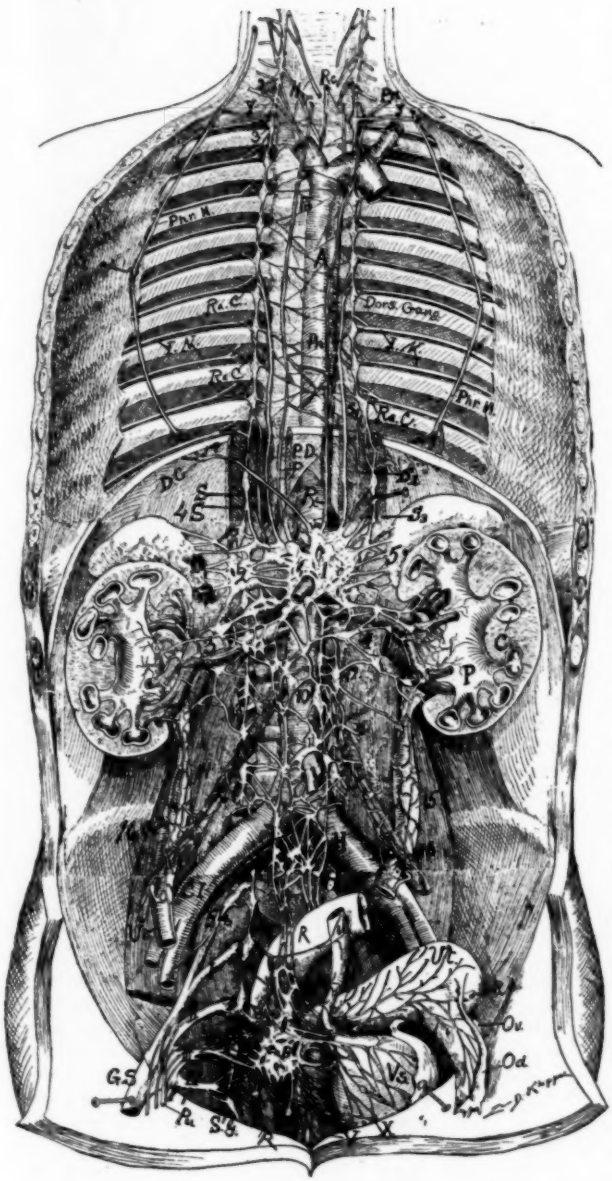
In closing I would state that I have drawn freely from the works of my old preceptor, Dr. John S. Billings, than whom there is no better authority.

PATHOLOGIC PHYSIOLOGY OF THE TRACTUS NERVOSUS (ABDOMINALIS).

BY BYRON ROBINSON, B.S., M.D., CHICAGO.

THE ideal nervous system consists of a ganglion cell, a conducting cord and a periphery, i. e., a receiver, a transmitter and a reorganizer. This simple view of the structure of the nervous system at once suggests its function, viz., that of reception (periphery apparatus—skin, mucosa), transmission (conducting apparatus—nerve cords), reorganization (ganglion cell—brain). The nervous apparatus is the highest and most perfect of known organism. Mental action or nerve force, the most subtle of all forces, depends on it. The nervous system includes the most profound secrets of life—it is the climax of organism. First and foremost the zone of the physiology of the tractus nervosus is not exactly defined—it is liberally elastic. Secondly, the pathologic physiology of the tractus nervosus possesses an expansive undefinable zone before established pathologic anatomy can be recognized. The pathologic physiology of tractus nervosus comprehends the fields of neuralgia, hyperæsthesia, anæsthesia, sensation, motion, melancholia, hysteria, neurasthenia, with innumerable irritable weaknesses of the nervous system. Absorption, secretion and peristalsis of viscera are the elements or means by which we recognize the pathologic physiology. In the numerous manifestations of symptoms of pathologic physiology of the tractus nervosus of the abdomen a few considerations may be suggestive and helpful in practice. First and foremost, many subjects are not perfect physically or mentally. Such subjects are prone to pathologic physiology. They possess inferior anatomy and physiology. Structure and function are of minimum perfection. Their nervous system is not stable. We should consider these defections or unstable conditions under long-employed or established terms, associated with which has grown a stately literature, as *stigma, habitus, asthenia congenita, heredity, predisposition, degeneracy.*

Nervous persons are afflicted with pathologic physiology. Nervous persons manifest a defective resistence. They are incapaciated for sustained effort. Nervous persons present premature exhaustion on persistent mental or physical effort. The reason of the nervousness is the anatomy and physiology of the tractus nervosus is inferior, its structure and function is deteriorated. Their nervous system is irritable, weak, defective, unstable, functioning much of the time with disorder and friction, like some watches, which maintain

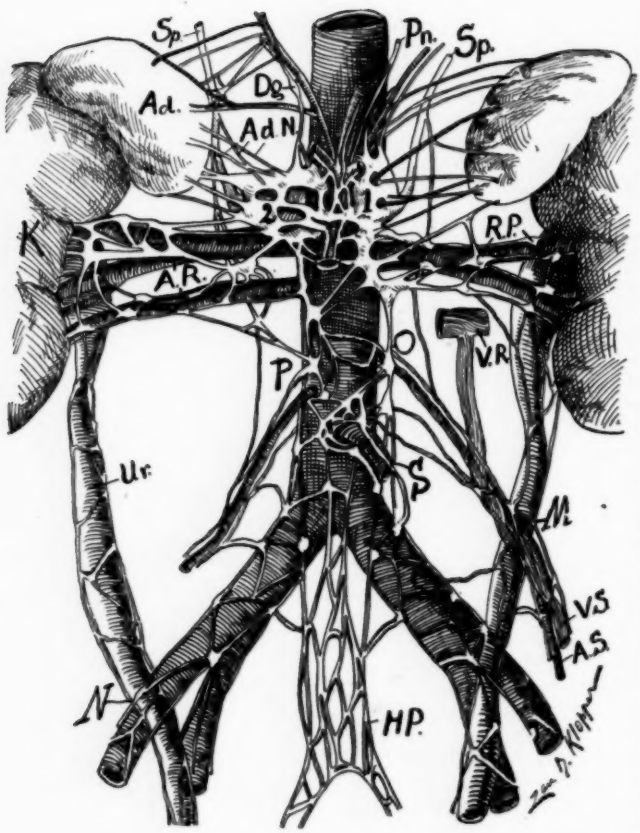


incorrect time. Nervous subjects are chiefly congenital unfortunates. They are born with defects, with stigma, a habitus, neuropathic predispositions—a condition which tends to degeneracy with facility. Nervousness, though frequently an announcement of an enfeebled nervous system, yet it may be evoked, aggravated by some irritation external to the nerve apparatus. Neurotic spells appear with as much mysticism as they disappear. The only trace is the memory of the disordered pathologic physiology. There is doubtless more or less foundation, for these inscrutable neurotic conditions, to be established in the state of the tractus vascularis, congestion, anæmia. The tone and tension of the abdominal muscles control the abdominal circulation. Diseases of the tractus intestinalis compromise the tractus nervosus by damaging its integrity—in structure and function.

One of the best terms to apply to subjects who are persistently afflicted with pathologic physiology is the word *habitus*, e. g., we have the habitus phthisicus, habitus splanchnopticus, habitus nervosus, habitus dyspepticus. The ensemble of symptoms associated with splanchnoptoxsia may well be termed habitus splanchnopticus. It is heredity in so far that the subject possesses a predisposition and the main defect is inferior anatomy and physiology. In the habitus splanchnopticus there is the gracile skeleton, the elongated flat thorax, extensive intercostal space, acute epigastric angle, the sacculated pendulous abdomen, limited muscularis and panniculus adiposus, the labored respiration. The costa fluctuans decima of B. Stiller, the peculiar habitus in form—presenting evident pathologic physiology. A marked factor in pathologic physiology of splanchnoptosia is the changed defective circulation, venous congestion. Generally, any subject with a "habitus" possesses an unstable nervous system. The dyspepsia accompanying the habitus splanchnopticus is perhaps more due to the neuropathic disposition than to the splanchnoptosia, hence the terms dyspepsia nervosa, or stigma dyspepticum. The habitus neurasthenicus presents pathologic physiology of the tractus nervosus—a condition of exhaustion or weakness of the nervous system, accompanied by physical and mental efficiency. Habitus neurasthenicus is a fatigue disease of the nervous system. It is characterized by the presence of motor, sensory, psychic and visceral symptoms—all fatigued, tired, exhausted. This habitus is especially characterized by weakness, or inefficiency and irritability of the tractus nervosus. The physician can detect spots of hyperæsthesia, spinal irritation, fatigue of the special sense, auditory and retinal hyperæsthesia—all pathologic physiology, no pathologic anatomy. However, if pathologic anatomy exists in the body it is liable to intensify the pathologic physiology, the subject of habitus neurasthenicus, precipitating storms of neurotic spells. The physician can detect the pathologic physiologoy, but not pathologic anatomy. The subject is afflicted more or less throughout life with pathologic physiology. When such subjects maintain additional strains as gestation and the care of growing children, pathologic physiology in the tractus urinarius becomes pronounced and frequent, e. g., the habitus neurasthenicus may be in abeyance, quiescent for a long period of time when the entrance of a pelvic disease, a myometritis, salpingitis, pelvic peritonitis, bay initiate, aggravate an intense neurotic state. It is not due merely to the so-called reflexes, but because the habitus neurasthenicus, the weak, irritable nervous system has been aggravated, traumatized, become unbalanced, exhausted, fatigued. Its inherent vital power is deficient and readily passes into a state of pathologic physiology.

A lesson right here may be pointed that surgeons should operate for surgical indications only, not for function indications. First and foremost, the gynecologist must learn to decide by an analytic exclusion diagnosis whether the subject has a habitus neurasthenicus, a pelvic disease, or the two combined. The test of a gynecologist is his ability to diagnose the disease—not to do an operation.

The exquisitely, finely balanced nervous system of woman makes it liable to imperfections of development —stigmata. Such a perfect organism as the tractus nervosus is prone to disease. The intimate and profound relation of the tractus nervosus to the tractus



genitalis in woman demands that a gynecologist be a physician of comprehension, or knowledge, understanding the vast fields of the tractus nervosus and tractus genitalis, as well as their profound relation.

The indiscreet and general surgeon announces that gynecology is "passing," and has become a segment of general surgery. This assertion presents limited comprehension. Is the oculist and aurist passing? Is the dermatologist, neurologist and laryngologist passing? Among the Germans, the most profoundly learned in medicine, specialists are progressively increasing. The fact is that legitimate gynecology, like all other specialties, is just beginning. Gynecology to-day is practically as broad as the entire medical field of thirty years ago. The gynecologist must comprehend not only the organs in his own special field (tractus genitalis), but also the adjacent organs involved in practice or stimulating gynecological disease, as the tractus intestinalis, tractus nervosus, and tractus urinarius. In the interest of the patient, no specialist can be limited exactly to the organs of his own specialty, for he should study the organs secondarily afflicted or dependent on the affections of the viscera on which he practices. The specialist must understand the anatomic and pathologic relations of specialized organs to adjacent territories, as vomiting (tractus intestinalis) to pregnancy (tractus genitalis), as albumin (tractus urinarius) to pregnancy (tractus genitalis).

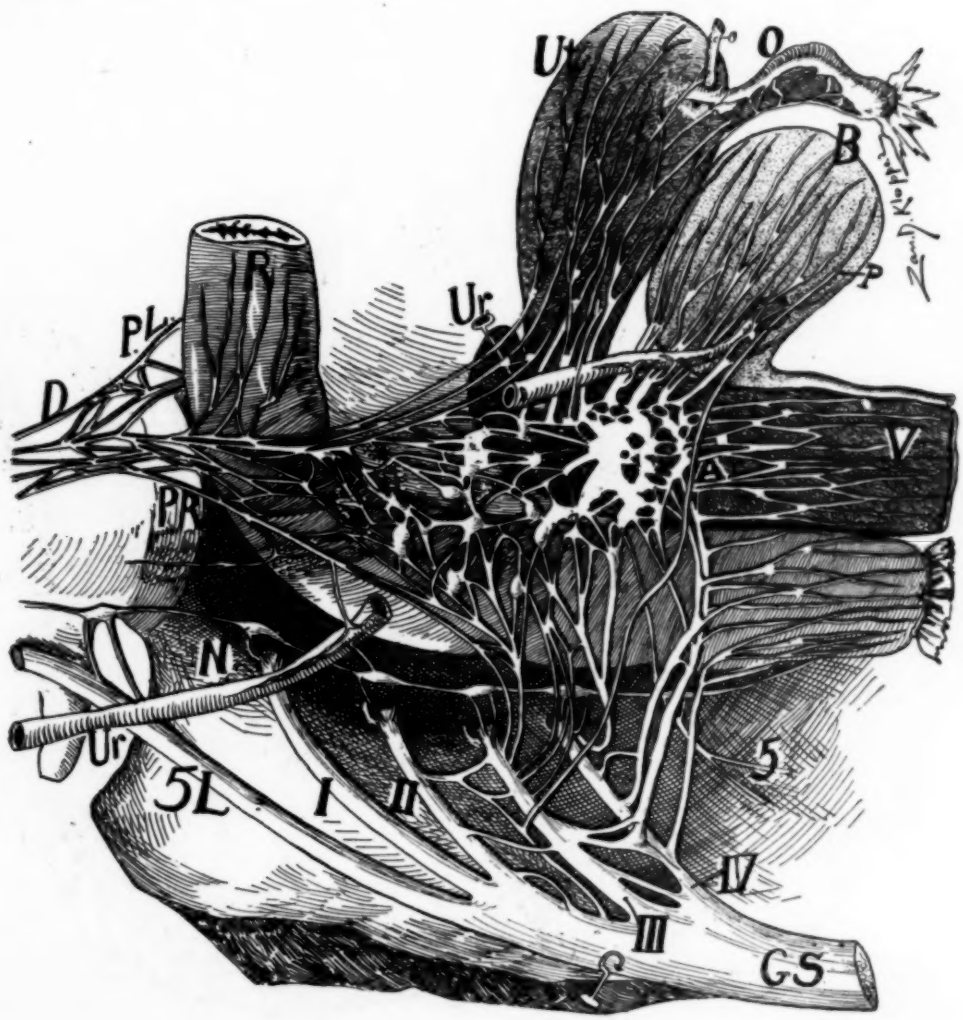
The more intimate changing relations of associated organs in structure and function the more valuable will be the study of the differential diagnosis in disease. The gynecologist should execute all necessary technique which will enable him to diagnose and treat diseases, dependent associated with the tractus genitalis—as cystititis, urenteritis, splanchnoptosia, mammary disease, constipation, nephritis, proctitis, thyroid disease. The borders of a specialty cannot be marked by the rim of a circle, but by the diseases dependent on and resulting from the specialized system of viscera. Every special science gradually unfolds its own dependent and associated relations.

Gynecology has been a typical example. It forced a divorce from general surgery, to which it never will return, from sheer magnitude. One mind cannot master more than one visceral tract with its relations. The unfolding of gynecology has increased the interest and usefulness of its domain. It has shown the delicate balance and relations of all abdominal viscera on the abdominal sympathetic brain. Practically all progress, new ideas, must come from specialists. The specialist is a permanent factor in medical progress, from whom will practically emanate discoveries and rational treatment. However, the present and future specialist is and will not be limited to single visceral tractus for their diagnosis and therapy of his independent field, but will study adjacent or remote visceral tracts which may lend aid in the differential diagnosis and rational treatment. The gynecologist should diagnose and treat all diseases primarily or secondarily dependent on the life, function and pathologic conditions of the tractus genitalis, as sacropubic hernia, rectocele, vesicocele, splanchnoptosia dependent on rapid and frequent gestations (nephroptosia, gastroptosia, coloptosia, hepaptosia—relaxed abdominal walls). The rock and base of medical practice (special or general) is the diagnosis which enables the physician to employ rational treatment, to act for the best interest of the patient. Large numbers of women with marked splanchnoptosia, dependent on the work performed by the tractus genitalis, as gestations, come to the gynecologist. The tractus genitalis, though primarily the basic cause of splanchnoptosia, itself is no more ill than the tractus urinarius, tractus intestinalis, or the relaxed abdominal walls. It is the duty of the gynecologist to treat such cases. The general surgeon is no more an expert in special departments than is the general practitioner. The reason for the operation, i. e., the diagnosis, is a thousand fold more expert than the mere technique of surgical procedure. *Predisposing* factors to pathologic physiology in the tractus nervosus are defective nutrition, variations of metabolism, chlorosis, anæmia, hæmorrhages, deficient or excessive secretion, premature senescence, strained physical and mental efforts. Heredity transmits defects which are the foundation for agravated pathologic physiology. When the subject has an established habitus as habitus splanchnopticus, habitus neurasthenicus, habitus phthisicus and predisposing factors become imposed to the subject is burdened with extreme pathologic physiology. An excellent example of artificial habitus is the numerous stigmata arising from the total removal of ovaries in young women, which condition might be termed habitus ovaricæ neurasthenicus. The young woman with castrated ovaries experiences an intense, aggravated, premature climacterium—she is suffering from pathologic physiology of the tractus nervosus. The patient is afflicted with flushing (disturbed circulatory centre), flashes (disturbance of caloric centre), perspiration (disturbance of the perspiratory centre). She has depression, melancholia, excessive panniculus adiposes,

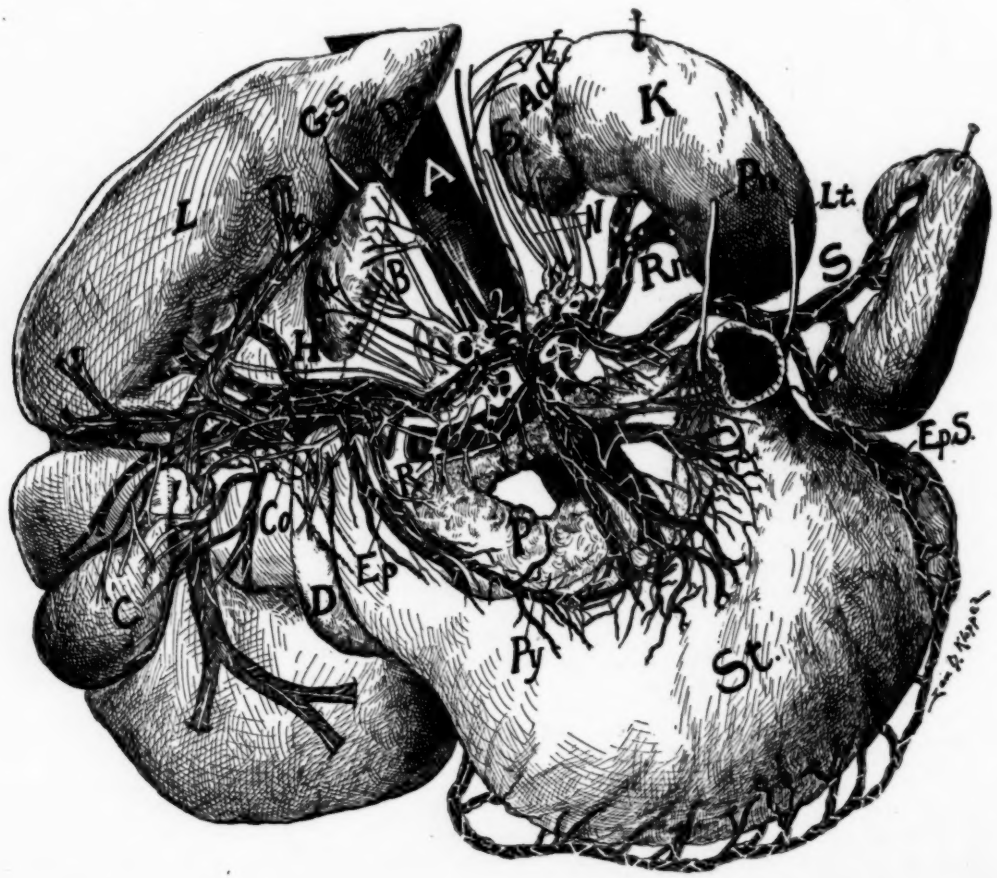
growths of hair. In some subjects the sensation of the tractus nervosus of the abdomen is awry. Subjects complain of animals crawling within the abdomen. This matter may be explained by supersensitiveness or hyperæsthesia of the mucosa of the tractus intestinalis from gas or contents. More than one operation has been performed for such condition. It may be incidentally remarked that it requires much study and discreet judgment to decide neurosis of the tractus nervosus abdominalis and the nervous disturbances produced by the dominating nerve supplied genital tract—both conditions induce aggravate pathologic physiology in the abdominal nerves, e. g., one of the most characteristic lesions, accompanying the habitus neurasthenicus—producing pathologic physiology—is defective development of the tractus genitalis. I think among the scores of women I have examined with defective development of the genitals that at least 95 per cent. were neurotics manifesting pathologic physiology of the tractus nervosus. Does the neurosis precede (congenital), accompany the defective development of the genitals or is it accidental to it? The most probable view is that it is congenital, and marks an ill development of the organism. The habitus neurasthenicus or habitus hystericus are not disease of the genitals but of the nervous system with an hereditary burden and perhaps an acquired burden. These conditions required vast study to differentiate in gynecologic practice. The habitus chlorosis is another example of a disease closely associated with the tractus genitalis. It is doubtless heredity, occurs in girls from fourteen to twenty-four years of age, i. e., at puberty or the developmental stage, is accompanied by increased panniculus adiposus and neurotic symptoms. Chlorosis is associated with defective development of the genitals in 75 per cent. of subjects. Genital functions are defective. The nerves governing secretion (ovarian) are perhaps defective. In diagnosing pathologic physiology of the abdominal nervous system it is well to determine the ætiology as acquired factors enhance conditions, e. g., the tractus nervosus of a pregnant woman is more irritable, more liable to pathologic physiology than the non-pregnant. The nursing woman is frequently in a state of pathologic physiology.

TREATMENT OF PATHOLOGIC PHYSIOLOGY OF THE TRACTUS NERVOSUS.

The treatment of subjects with disturbances—pathologic physiology—in the abdominal nerves is difficult in



ordinary practice because the acquired factors are inseparably associated with continuous environments, with habitat. The ætiology and consequent habitus or stigma must be diagnosed by careful examination in individual subjects. The reason the sanatorium is so successful in the treatment of the nervous patients is the patient is removed from the environments, from the habitat, in which the disease developed. The provocative or aggravating factors must be generally eliminated. It may be constipation, deficient drinking of fluids, the ingesting of improper concentrated foods, which leave insufficient indigestible residue to provoke intestinal peristalsis. It may be sedentary habits, insufficient exercise or deficient fresh air. It may be excessive work and worry, insomnia. In the subject with the habitus neurasthenicus I am in general opposed to the so-called Mitchell rest cure. The neurasthenic may possess fatigued nerves but not fatigued muscles. I attempt to treat the neurasthenic by maintaining her in the fresh air and muscular activity all day. In the subjects I administer active visceral drainage and coarse foods which leave a large undigestible residue. She is improved by the bicycle, by games requiring muscular activity, rides which massage the viscera, fresh air, appropriate diet, and ample fluid at regular intervals. Some neurasthenics are practically unmanageable. I am now treating a woman twenty-seven years of age who has lain in bed for three years. She says her nerves could not stand walking in the sunshine. Physicany I can detect no pathologic anatomy—simply pathologic physiology. By forced feeding she retains ample flesh. During the last six months, by all kinds of persuasion, we succeeded in inducing her to walk one block daily. Maximum visceral drainage and appropriate dietetics maintains apparently a healthy physique. We agree with Dr. John G. Clark that several kinds of neurasthenics exist. The gynecologist meets with three kinds of neurasthenics, viz., (a) a neurasthenic of congenital origin—habitus neurasthenicus congenita—who practice almost continually genital introspection where the physicians can not detect genital pathologic anatomy. She is constantly occupied by views regarding genital and sexual life. The treatment of such neuropathic subjects is lifelong, firm discipline, hygiene, dietetic, fresh air for twenty-four hours a day, ample fluids, physical exercise. (b) A neurasthenic with coincident visceral lesion but each entirely independent of the other as may occur in the tractus genitalis, tractus intestinalis, tractus urinarius. In the second condition the additional treatment is to remove the lesions of the soul visceral tract; (c) a third kind of neurasthenic is where the neurasthenia is dependent on an organic, visceral lesion. The tractus nervosus of the originally predisposed, neuropathic subject was provoked, aggravated into a state of pathologic physiology by the organic lesion. The treatment of this third class is repair of the organic lesion and systematic visceral drainage by means of fluids and foods.



1. *Dietetic.* The diet of neurotic patients should be regulated under strict discipline. It should consist of cereals, vegetables, albuminates (egg, milk), and limited meals—mixed diet. The high spices, cakes, puddings, pies, stimulants should be eliminated.

2. *Fluids.* Ample at regular intervals—8 ounces every two hours for at least six times daily. This forty-eight ounces of fluids daily may be nourishing fluid—as, milk, buttermilk, eggnog, cereal gruels.

3. *Salt rubs,* which the patient administers to herself once or twice daily, at stated times for stated duration.

4. *Massage,* which should be administered as much as possible by the patient herself. The patient can be taught massage of the abdominal muscles, which especially benefits the abnominal visceral tracts.

5. *Exercise* is absolutely necessary for health. The neurotic patient continually complains of tiredness and fatigue. The fatigue belongs to the nerves. It is not muscle fatigue, hence the muscular activity should be vigorously maintained in walking, riding, games—all distracting the patient's attention from herself. Muscular exercise influences circulation and hence nourishment.

6. *Fresh air* should be continuous day and night. The sleeping-window should be open all night. The window of the day-room should be continuously open. Cold, fresh air is an invaluable therapeutic agent in neurasthenic disturbances and tuberculoses.

In order to assist the foods and fluids to secure maximum visceral drainage I place on the tongue every two hours a tablet containing 3 grains of sodium chloride (NaCl) and a part or multiple of an alkaline tablet [composed of aloes (1-3 gr.), cascara sagrada (1-40 gr.), $NaHCO_3$ (1 gr.), $KHCO_3$ (1-8 gr.), and $MgSO_4$ (2 gr),] followed by 8 ounces of fluid. This visceral drainage method I follow systematically for weeks and months, resulting in successful maximum, visceral drainage, with increased nourishment, improved sleep. The elimination of waste-laden products benefits the nervous system—the pathologic physiology is reduced to a minimum and the patient recovers.

SURGERY OF THE BLADDER.

BY J. LEE FOWLER, M.D.

PART II.

There are four varieties of exstrophy of the bladder, only one of which is common: (1) Ectopia of the bladder without division of its walls. (2) Superior vesical fissure. (3) Inferior vesical fissure. (4) Complete extroversion. The one case on record of the first is that related by Gusserow, of prolapse of the bladder through the patent urachus; the second and third varieties are also excessively rare. The usual appearance of the fourth variety is well known. Keibel believes that the ventral wall in the subumbilical region is formed by the so-called anal membrane, which constitutes at the same time the anterior wall of the cloaca in which the bladder is about to develop, so that here the bladder and abdominal walls have a common origin. The anal membrane is nothing but the most posterior reflected portion of the primitive streak, and Keibel believes that the dehiscence results from a continuation on to the streak of the primitive furrow. Deformities constantly accompanying exstrophy of the bladder are epispadias and absence of the symphsis pubis. The pubic bones may approach within 2 or 3 centimetres or may be distant as much as 4½ inches from one another. Other rather common concomitant deformities are ectopia testis and absence of the prostate. Occasionally the intestine opens through the posterior bladder wall, with congenital absence of the rectum. Surgeons have discussed various operations: (1) Methods of procedure in which the bladder is preserved and closed by plastic operations. (2) Methods in which the bladder is sacrificed, and the ureters are brought into the vicinity of a closed urethra or into the vagina. (3) Methods in which the bladder is sacrificed and the urine diverted into the lower bowel.

The auto plastic methods of Thiersch and Wood have the disadvantages that owing to the growth of hair the wall tends to become covered with phosphates; that the new bladder is not continent; that usually many operations are necessary and failures frequent. The plan of directly suturing the margins of the bladder, first proposed by Gerdy, has been elaborated by Czerny, Mikulicz, Rydygier, Walsham, and others. Czerny loosens the bladder from all its attachments until it is adherent at its base only, and then sutured the edges together, while Mikulicz carries the incisions for freeing the bladder down to the transversalis fascia, along the outer border of the recti, to include the attachments of these muscles either alone or along with a portion of the os pubis.

There are other procedures to be considered: (a) Methods which aim at the approximation of the ossa pubis; (b) methods which devote special attention to the attempt to restore the sphincter vesicæ. Of the first, Trendelenberg's is the oldest osteotomy through the sacro iliac joints; in 1896 König suggested division of the horizontal and descending rami of the pubes, and displacement inwards of the portions thus loosened. In 1897 Koch substituted osteoclasis for osteotomy of the sacro iliac junction. Of the second, Kuster incised the penis inferiorly, separated the corpora cavernosa, and after freshening the edges of the dorsal furrow, sutured the corpora cavernosa over the channel of mucous membrane thus made. The lateral incisions through which the mucous membrane was freed were carried along the bladder wall, and a separate suture of the mucous membrance and of the muscular wall made here. To increase the amount of mucous membrane available for forming the new bladder Rutkowski opened the abdomen and brought out a coil of ilium; from this he cut a segment, and after uniting the cut ends and restoring the continuity of the gut, opened the isolated piece longitudinally and thus obtained a quadrilateral flap. The bladder was then detached and the intestinal flap sutured into defect. The abdominal wall was closed over all. Mikulica operated in the same way, but did not complete the procedure at one sitting. He used 12 cm. of the lower ilium. He had found, during the course of experiments on dogs, that if he isolated portions of intestine a certain number of such portions atrophied after a time. He left the isolated portion within the peritoneal cavity for some seven months before proceeding to use it to augment the vesical mucous membrane. Mundel suggested the transplantation of sheep's bladder, carrying out his suggestion experimentally on a dog. He placed the flap obtained in between the superficial and deep fascia of the abdominal wall, the

mucous membrane downward and protected from forming adhesions to the deep fascia by a sheet of gold foil; the other face of the flap becomes attached to the superficial fascia and skin, and after this attachment is firm a flap of skin thus lined is separated up and swung over into position over the front of the extruded bladder. The direct suture of the bladder wall is in every way preferable to the covering with skin flaps, and avoids the dangers of incrustation and cystitis. A receptacle can be satisfactorily formed by Czerny's or Mikulicz's method. Also, Rutkowski and Mikulicz have shown that it is possible to increase the capacity of a bladder deficient in this respect, and Mundel's suggested procedure would appear to be capable of obtaining the same result at less risk to life. If, therefore, it is possible to make the receptacle continent, the total result would be in every way satisisfactory, but the cases in which this desideratum has been obtained are very few. If any sphincteric action is to be obtained it must be striven after (a) relief of all lateral tension, and approximation of the ossa pubis; and (b) a careful dissection and apposition of the structures at the base of the penis Kuster Poppert. If a sphincter can be constructed the methods of direct suture of the vesical walls, possibly after increase of the vesical capacity, furnish means of obtaining a useful bladder. With regard to the existence of material out of which a sphincter may be fashioned there is little anatomical evidence. Methods in which the bladder is sacrificed as a receptacle and the urine conducted to the urethra are represented by those of Sonnenberg and of Segond. They have been adopted by those who think it impossible to make a satisfactory continent bladder by any of the above recorded methods, and who are unwilling to run the risks involved in the conveying of the urine to the bowel. Sonnenberg extirpates the mucous membrane of the bladder, and sutures the ureteral orifices in position at the base of the urethra. Segond uses the bladder mucous membrane to cover in the epispadias, dissecting a broad flap with its base at the trigone and folding it over from above downwards. The objects attained by these methods are the removal or covering in of the exposed mucous membrane and the facilitating the adaptation of a receptacle for the urine. Sonnenberg has operated on seven cases without a fatal result; he considers the method preferable to others in that the formation of a bladder is useless if there is no continence, and in that the amount of mucous membrane for the formation of a bladder of satisfactory capacity is as a rule quite insufficient; on the other hand, he emphasizes the danger of pyelonephritis when the urine is carried into the bowel. Methods in which the urine is diverted into the bowel comprise: (a) Dissection of the ureters and implantation into the sigmoid flexure or rectum; (b) dissection of the ureters, together with a portion of the vesical mucous membrane and implantation of the whole into the sigmoid flexure or rectum; (c) formation of the vesico rectal fistula. The first method was attended with a very high mortality, and has in consequence been abandoned in favor of the second and third.

Maydl separated the ureteral extremities together with the mucous membrane between and immediately around them, and the fixation of this to the edges of a longitudinal wound made for the purpose in the sigmoid flexure; others have planted the flap into the rectum. Maydl in a recent communication expresses disapproval of the rectal implantation, and also of any attempt to separate the ureters without the portion of attached bladder wall. The results of this procedure in successful cases have been satisfactory, in so far as it has been shown that the rectum is capable of retaining urine for a period of several hours and voiding it under voluntary control. The mortality has been due primarily to shock, and secondarily to ascending ureteritis and pyolonephritis. The latter was responsible for an excessively high mortality when the ureters were directly planted into the bowel; but Maydl's method has very largely reduced this. Illustrative cases are reported as follows: Frank reports a case in which the urine could be held for five hours, and during the night sleep was undisturbed; health was perfect. Mazel has related two cases successfully operated on by Wolfer, and refers to fourteen others (with twelve successes) during the six previous years. Hartley relates the case of a child, aged three and a half, where he implanted into the rectum; the urine was passed every four hours during the day and once during the night, the child asking for a vessel. Of forty cases operated on by Maydl's method twenty-one were reported well at one year, ten at two years, seven at three years, and one at seven years, but in spite of Maydl's disapproval of rectal implantation many successful cases have been recorded. Petersen has shown how much less the mortality of Maydl's procedure has proved than that following the axial implantation of the ureters; he believes that Frank's method of vesico rectal anastomosis will probably still further reduce the mortality. It has now been established: (1) That by diverting the urine into the lower bowel continence for an average period of between three and four hours can be obtained. (2) That the mortality of this procedure is much reduced by preserving the ureteral orifices intact, later operators showing one of about 14 per cent. (3) That plastic method in which the bladder is preserved have so far failed in the great majority of instances to fashion a continent receptacle. (4) That if by some procedure such a continent bladder can be obtained the plastic methods available are capable of providing one otherwise quite satisfactory. (5) That if the methods of diverting the urine appear to be contraindicated in any case, and it is considered useless to attempt to obtain a continent bladder, the extirpation of the bladder wall and the approximation of the ureters to the urethra facilitate the satisfactory wearing of a urinal.

In experiments on animals with a view to ascertaining if it were possible to transplant the bladder of one animal into the body of another, Mundell was successful in implanting a piece of the bladder wall of one dog into the abdominal wall of another, interposing it between the superficial and deep layers of the superficial fascia, and laying a sheet of gold foil between the mucous membrane of the bladder wall graft and the deep layer of the fascia to prevent union of this surface. He proposes to use the bladder wall of a sheep in like manner in a case of ectopia vesicæ, and when the graft is united to form a flap composed of the skin and superficial layer of fascia and sheep's bladder graft, to create an anterior wall for the bladder; in this way the surface exposed to the urine would consist of mucous membrane.

Douglas contributed a paper on the bacillus coli

communis in cystitis, based on work done in the Royal College of Physicians' Laboratory, Edinburgh. The seventeen male patients examined fall into three groups: The first group, of four cases, had alkaline and ammoniacal urine; of these, three contained a pure culture of staphylococcus, and one a mild culture of staphylococcus, streptococcus, and then colon bacillus. Two of these cases had cystitis secondary to calculus, and two cystitis due to catheterization. The second group consisted of three cases of prostratic enlargement without decided evidence of cystitis. All three cases yielded pure cultures of the bacillus coli communis. In these cases the distinguishing character was the abundance of bacterial growth and the sparse occurrence of leucocytes, and they might fairly enough be termed cases of bacteriuria. The third group included eight well-defined cases of cystitis with acid urine, and without disease of the prostate or any history of infection from instruments.

His conclusions are as follows: (1) The bacillus coli communis is met with in the great bulk of cases of cystitis, and in many is apparently the determining cause of the disease. (2) In certain cases the organism is abundantly present during long periods in the bladder under favoring conditions, but without causing cystitis. (3) Certain of the facts lend support to the view that often the bacillus is a supplanter of other forms, rather than the initiating cause of the disease. (4) The marked polymorphism and varying pathogenicity of the organism would account for the conflicting opinions held regarding its identity, and its rôle in cystitis, and the confusion in nomeclature until recently prevailing. (5) No one culture reaction enables the organism to be recognized with certainty, but cultivation on several media is needful.

General tonic and strengthening treatment is of the highest importance in tuberculosis of the bladder. Of the drugs for internal use creosote and guaiacal carbonate appear to give the best results, though positive conclusions are hard to draw. Careful irrigation may do much good, and in isolated cases may even effect a cure, but the irrigations should be very small in amount and never carried to the point of the least distension. Lactic acid (up to 20 per cent.) and bichloride solutions (1 in 10,000 to 1 in 1,000) give the best results, but both are painful, the former being especially so. Operative treatment should only be resorted to when the disease is localized to small areas.

Contrary to the belief of the majority of American surgeons, Guyon and Michon published some years ago a series of cases to prove that continuous catheterization was the safest and most successful treatment for urinary infection attended with fever, and recently Guyon again insists upon the value of this method. These cases include the last stage of prostatic enlargement, which are usually regarded as hopeless. Guyon reduces his mortality to 20 per cent. by this method. Suprapubic drainage, he claims, is attended with a mortality of over 36 per cent. In over 50 per cent. of his recent cases defervescence took place in the first three days. Christian is also an advocate of this method of drainage of the bladder, and has recorded several cases to show its value.

Harrison gives an interesting report of one hundred and ten cases of operation for stone performed between 1890 and 1897. The operations were: Litholapaxy, one hundred and one; perineal lithotrity, three; suprapubic lithotomy, three, and median lithotomy, four. Death followed the operation of litholapaxy in six cases, and was due to the following causes: Suppurative nephritis, four cases; pelvic cellulitis, probably from a vesical pouch, one case; senile decay, one case. In the cases of suppurative nephritis, the first was a man of sixty-five years, on whom a similar operation had been successfully performed thirteen months before, and the second operation was probably too long delayed; the second, a man, aged sixty years, died on the twenty-eighth day of chronic suppurative nephritis and syncope. In the remaining two cases there was urethral stricture of long standing, and in one of these the author believes that perineal lithotomy and bladder drainage would have given a better result. Besides these two fatal cases stricture of the urethra was a complication in six other patients. In itself stricture is no obstacle to litholapaxy, but when it is of such tightness and duration that suppurative nephritis is imminent or actually present, this operation will be practiced under grave risks, and perineal lithotrity, with division of the stricture and subsequent drainage, is far safer. In the one hundred and one cases of litholapaxy recurrence of the stone necessitated further interference in twenty-three. In these cases the operation was repeated once in thirteen, twice in two, thrice in one, four in one, five times in one, six times in one, nine times in two, and ten times in two. Many of these secondary operations were slight, and as they were mostly performed in old men with atonic bladders and the intervening health was good, a cutting operation was not to be recommended. Recurrence of stone after crushing is only of importance in cases tions. In the child or young adult it is very rare, and only once in this series did it occur, and then was probably a fresh stone from the kidney. All the remaining cases of recurrence were associated with this form of urinary obstruction. The explanation is simple, for complete emptying of the bladder becomes impossible, and stones descending from the kidneys are retained, and in the same way other foreign bodies, such as shreds and sloughs from an inflamed bladder form nuclei for the formation of stones, while on more than one occasion a recurring calculus takes origin on the cicatrix of a suprapubic cystotomy wound, or the remains of silk sutures used in this operation. Incomplete removal of débris after crushing does not lead to recurrence so often as some authorities consider. In cases of enlarged prostate, however, the sacs and pouches in the bladder wall are inaccessible hiding places for such débris. To prevent recurrence of the stones, thoroughly clear the bladder in the first instance, watch the subsequent management of the case, and use measures which aim at causing shrinkage or atrophy of the enlarged gland. Harrison insists upon the importance of washing out the bladder once a week with the metal catheter and aspirator for three or four months after operation in cases of enlarged prostate and atonic bladders. Some silver salt has a beneficial effect on these cases of prostatic hypertrophy with chronic cystitis when there is a tendency to the formation of phosphatic concretions. Vasectomy, with a view to causing atrophy of the enlarged gland, was performed in six cases, and seemed beneficial in

facilitating the passage of instruments and allowing freer micturation, and thus getting rid of the slimy mucous. In none of these cases has recurrence of the stone taken place. The other operations performed were not preferred on account of the stone, but for some complication present. Thus perineal lithotrity was performed in three cases on account of an extremely contracted and thickened bladder, a rigid fibrous prostate and a frequently operated urethral stricture respectively. Suprapubic cystotomy was performed twice, and in both cases the operation was in the main an exploratory one. Harrison does not favor this method of removing large calculi from elderly males.

THE SEX PROBLEM.

BY WILLIAM COLBY COOPER, M.D.

THE sex question—where is the bottom of it? The towering, whelming probability is that it has no bottom any more than has the cosmic ultimate. There is two of sex—eternally *two* of it. This contradicts monistic finality, but what does not, since all possibility depends on action and reaction? *Betweenness* is the last fact. The oneness resulting from sex relationship is still betweenness. This is necessarily true because the sex fact depends on complemental assurance. Only out of active and reactive assertiveness is self-verity realizable. The essentialness of betweenness in all fact is familiarly illustrated in the impossibility of "self-control."* What plausible and glittering impossible moral certitudes have fallen out of the inchoate consciousness of the inevitable homilist in relation to "self-control!" *A* may control *B*, but how shall he control himself, there being but one of him? Shall he transcend himself—otherwise, shall he lift himself by the boot straps? The feat is nullified by the lack of betweenness. But the irrepressible homilist, forever accepting himself (*i. e.*, accepting his consequent double) seriously, will go on twittering sweet platitudes anent "self-control." For what shall disperse the vanities and rupture the smugness of the professional moralist? After all, though, if the homilist should take on over-nicety and always take the trouble to explain that "self-control" is inexorably, inexcusably, ineluctably and forever environal control, would much be gained by it? I suspect not.

Betweenness, then, is the essence of sex, as it is of everything else. I should not call the male fact positive and the female fact negative, neither would I reverse the order. The fact is, there is no *negative* in the universe. In the proximate, and for technical reasons, the word is handy one, that's all. To negative would be to nothingize and there is no *nothing*. In relation to "nothing," we are annihilated, for what is thought to be meant by "nothing" is without relation. To consciously be is to consciously think, and to think is to relate. How shall the unrelatable be related?

Both the male and female facts are positive ones, differing, not in degree, but in quality. Neither of these facts is a fact *de novo*, but each is derived from the other. The male fact is not such by its own virtue, but by virtue of the female fact. This results from complementary ultimateness which depends on ultimate betweenness, the betweenness between the complemental ultimate and the between ultimate being primal and uncreate—there being no primal and uncreate.

The great, over-riding *between* fact dominates and controls all the emotions and acts of everybody. It dominates everything contributing to emotions, intellections and acts—it dominates everything. That it centralizes in the sex fact marks a conquering epoch in universal verity, bearing in itself all the authority of a cosmic rescript. The sex fact is the All-fact. Without the sex fact subjectivity could not be, and without subjectivity objectivity could not be. So then, *between* the two sex facts swings the universe.

Is it marvelous that masculine man swirls down life in a euroclydon of lyssic stress? Is it wonderful that the same is qualifiedly true of feminine man? What else could the Kosmos do? Self-perpetuation is the bottom impulse of accomplished being. The Kosmos *is*—intelligently *is*. If not intelligently so, whence this providence? Shall a lesser beget a greater? And there is no *dumb* matter, for whence the dumbness? Who is it that says "dumb matter" when all matter is mind?

Note the lovers. What is it *between* them? An unbridged abyss. But they will bridge it! Why? Because, by a mandate as old and divine as Time and God, they *must*. What are they doing? They are conserving each other, conserving themselves, conserving the universe, even as it is conserving them. What niceties of cognizance develop *between* them—nuances in meanings that defy speech, being ineffable. How their logic is subsumed in feeling and what a riot of emotions. They *think* with their hearts, and each is the other's code of ethics—religion. Think of the catasterisms of pregnant trivialities that twinkle *between* them. And oh, the far-reaching tremendousness of their baby-talk! For what is back of its mere phonation? But the soiled Venus—may sexual conjunction be desecrated? No, not IT, but the *fact* may be, and enormously is profaned. *Between* Love and love what constellations of divinities have been created—Eros, Aphrodite, Urania, and the rest. And it all comes out of the sex fact. Sex is unconditioned—it knows no statutory law. This, whether convention will or not. Love brooks no artificial bar, and the sex fact laughs down priestly ceremonials. The world is moving—but so slowly—toward the climax of sex righteousness. The exigencies of sex have no philosophic equivalents, and are not relationable to legal technique. Bald-headed salacity and the bone-pig ethics of young puberty—what shall we do with them? I suspect we shall have to tolerate them, for the abolition of sex would be the only remedy, and to do this would be to abolish the universe, and that would subject us to great inconvenience. We can statute *at* sexual abuse—it has peripheral advantages. Let us bear with sex—since we must—regulating excesses the best we can.

*Let it be noted that although unity is an incontestible fact, it merely represents the sum of its parts, and these involve betweenness.

There is no insurance, states an exchange, against the accident of birth.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, AUGUST, 1906

The Soul knows only Soul, the web of events is the flowering robe in which she is clothed.—*Emerson.*

OPENINGS FOR PHYSICIANS.

AT this season, numerous recent graduates are seeking locations. To some, the necessity of earning a living is absolute. Fortunately, the knowledge that the medical profession is crowded to the point of tolerance, has become so well diffused that comparatively few men now begin the study unless they can see their way clear to living three or four years after graduation independently of the returns of practice.

It is not our present intention to discuss the economics of practice in any broad sense, nor to indulge in either optimism or pessimism. We shall limit ourselves to the case of the man about to enter practice and who simply must make a living. It is of no use to say that he ought not to have studied medicine, that he ought to have had sufficient foresight to have been born into a family of ample means, that he ought not to have married till he was settled in a career, that he ought not to have left a paying occupation simply because he wanted to study and practice medicine.

In the first place, this degree of optimism is warranted: Any man of fair intellect and industry, even if no better educated than the law requires, and with any ordinary degree of physical or social handicap, can eventually make a living in the practice of medicine. Wm. Pepper, perhaps the most successful internist in America, was by no means the physical type of a physician. D. Hayes Agnew, who achieved the highest rank as a surgeon, gave up practice as a failure and later returned to make a brilliant success. There has been much nonsense written as to the value of a beard or a dome-like forehead, of dressing and living up to lay ideals of the physician, of the direct reward of virtue and the direct pecuniary punishment of drunkenness and various other bad habits. There seems to be no physical build, or method of speech or dress or conduct, or social or financial condition that is the index of success or failure.

In medicine, as in many other vocations and, indeed, as in most of the critical matters of life, one of the most important points is to hang onto the rope.

It seems logical for a young man to say: "I have prepared myself thoroughly for medical work. I am a gentleman. I have some acquaintance and some dignity of bearing. I will engage a suitable office, on a modest scale, hang out my sign, and trust to Providence for enough practice to pay expenses." *We have heard of a few cases* in which this logical attitude was justified by the outcome. On the other hand, we may cite the cases of a married man who was mature in years and appearance and of considerable acquaintance of the kind that might reasonably be considered favorable to immediate professional employment. He was turned out of his house and his furniture seized for rent. Another man, with some small capital, married a girl of excellent social standing and of a family of some means. She died of puerperal fever indirectly due to poverty, and the doctor was forced to take a salaried position. Another physician, a bachelor, almost starved to death until a kind-hearted physician in good standing, with somewhat doubtful propriety, got him a position in a quack establishment. Another man, with a prosperous drug business, at the age of thirty decided to study medicine. He ran his business till he graduated, then sold out and opened a well-equipped medical office. After a few months, he found that he was not making expenses and he drifted from one position to another till, at the age of fifty his wife is taking boarders and he is earning a small salary in a quack institute.

In all these cases, the conditions seemed unusually favorable. We do not allude to the numerous cases in which young men of no particular acquaintance or standing, have opened small offices and have failed. What we wish to impress upon the man embarking in practice, young or old, is the extreme probability of disaster if he has no source of support other than his practice, that will suffice for the first two or three years.

The number of positions in which medical practice is salaried is relatively small. There is a limited number of openings for chemists, bacteriologists, instructors in colleges, etc. These positions usually demand qualifications far above the average and pay ridiculously small sums. Those that pay anything like living wages—say eight hundred dollars and upward—usually require the entire attention of the incumbent. Those that leave him free to practice medicine sel-

dom pay over five hundred dollars a year, and often less.

Of salaried positions in medical practice, the most desirable, from most points of view, are the government services of the Public Health and Marine Hospital branch of the Treasury Department, the Army and the Navy. The first seems most desirable because one's superior officers ar eexclusively physicians, because the stations are mainly large cities, and because there is much less discipline and red tape than in the other two. It is generally understood that the social position of the army surgeon, with regard to other army officers, is somewhat better than that of the junior navy surgeon. The actual medical work of the first service is greater and more regular than of the other two, and, hence, the service is more desirable for one with genuine professional instincts. Then, too, the latter services are especially liable to the encounter of serious emergencies requiring great operative skill for which the routine affords no adequate experience. These services pay $1,600 a year at the beginning, with occasional promotions, so that, by the age of fifty, the physician could reasonably expect an income of about $3,500 to $4,000. The absence of office expenses, certain perquisites, pretty regular annual vacations of about a month, occasional pleasant details and a retirement with pay, at the age limit, render these government services far more desirable from the financial point of view than 90 per cent. of private practices. But, unfortunately, only a few vacancies occur each year, so that only about 1 per cent. of the medical profession can thus be provided for, and the requirements for admission are very high.

Various civil service and more or less political positions exist under municipal, county and state governments. The most numerous are in connection with the care of the insane. Possibly another 1 per cent. of the profession can be accommodated in these positions, but many and at any rate all that are especially desirable, are closed to the average recent graduate.

The attendance on the sick in penitentiaries, on the pauper class not lodged in institutions, etc., is usually provided for by contract with the appropriate local government. Usually, more or less political influence, as well as practical experience and the passing of an examination, is necessary. According to local conditions and precedents, there may be a fair salary with requirement—not always enforced—of exclusive services, or the salary may range from $100 to $500, or thereabouts, with privilege of private practice. In either case, there is not much chance for a livelihood from such a source, for the beginner, and we know of a number of instances in which men of twenty years' practice have been glad to hold on to such offices.

Passenger steamers, at least on the ocean, must carry one or more surgeons, but most of the great transatlantic lines are foreign and are manned with foreign surgeons. Such positions are quite desirable from some standpoints, although they have their objections, but there are few vacancies and recent graduates are rarely employed.

Theoretically, there ought to be numerous opportunities for positions of assistant to a physician in full practice. Unfortunately, the present overcrowding of the profession prevents the average physician from ever reaching a stage where he can afford an adequately paid assistant. The use of an office and laboratory, occasional crumbs of practice and minor courtesies represent the usual standard of recompense for assistants. "Salaries" of five or six dollars a week do not go begging, and we have even known of rich physicians exacting a tribute of a thousand dollars a year for the privilege of working as an assistant. So far as we know, positions as assistant at a living salary are mainly limited to sons, nephews and sons-in-law of unusually prosperous physicians.

Speaking generally, there is very little use for the average recent graduate, without influence or exceptional attainments, to seek a salaried position. There is one considerable exception to be noted. Quack institutions of all sorts are anxious to get fairly well-qualified physicians and such employment can be obtained, not without effort, but still rather easily. We have even known of men of good quality, who accepted such employment under pressure of family duties and who subsequently entered legitimate practice and received the pardon of their associates. Still, we would point out that it is equally easy to teach, to do clerical work, to act as drummer for a wholesale drug house or to engage in some other respectable lay business, that just as much money can be made in these capacities and that it is better to delay entering upon private practice until enough can be saved to pay expenses for, say, two to four years. The practice of medicine without an honorable professional standing is worse than Hamlet with Hamlet left out.

For the young medical man who must make a living from the start and who insists upon making it in medical practice, we would suggest the not altogether comfortable but inevitable principle of balancing supply and demand. In other words, unless he chooses to run great chances of failure, he must go where there is a vacancy, and this means that he must accept a location which is, in a relative sense, undesirable. Such vacancies may be encountered in mining and similar industrial communities, sometimes as salaried positions, to a large company, even including a few large manufacturing concerns in large cities, sometimes in openings for private practice in a rather

isolated population, either in the city or in country districts. A much better clientele can be found by the beginner in the country than in the city, and country life is by no means undesirable, either professionally or socially, except on somewhat superficial consideration.

This is not the sort of an article that we should have liked to write under the present heading. It would have been much more pleasant to assure the recent graduate that there was plenty of opportunity for any sensible, energetic and well-educated young physician, either to work up a private practice to a paying basis within a few months, or to secure an official position or employment as an assistant at a fair salary. Unfortunately, as President Lincoln once said to an applicant for a position, "There are too many pigs for the tits."

On the other hand, there is this much comfort that can be had. Any energetic, fairly skilful and tactful physician who can command support for, say, three full years, can scarcely fail to make a living out of medical practice, and he can be reasonably sure of an honorable and pleasant, though by no means easy or lucrative, position in society. And we wish to emphasize the principle that it is better to lay aside the investment of work and money represented in the medical degree, temporarily or permanently, and to earn one's living by honorable, perspiring toil, than to practice medicine outside the pale of legitimate professionalism.

TRIPLETS AS A FINANCIAL PROBLEM.

THERE has recently been decided a case in the Common Pleas Court of a neighboring state which throws an interesting light on a phase of medical practice. It seems that a certain family physician contracted to attend a woman in confinement for the modest sum of eighteen dollars. No further agreement was made. On the day of the accouchment it seems the busy physician presented to a surprised but happy father a fine set of triplets. Now the attending physician sent in a bill for fifty-four dollars, or eighteen dollars for each child. The physician's argument was that he contracted only to deliver one child, and that it was an underhand trick for him to be compelled to arrange for the reception of three. On the other hand, the father claimed that he made a plain deal with the obstetrician in that he was to attend the case for a certain set sum, no mention being made of trouble for extraordinary conditions.

In the eyes of the law it seems that a prosaic judge decided that the layman's condition was correct; the contract was made and the family were entitled to spring as many babies as President Roosevelt himself could imagine on the unsuspecting doctor. The case was further complicated by the fact that the physician himself was away from home at the time, and his place was taken by his substitute, who called in a consultant, but these facts did not affect the legal phase of the question.

It would seem as if this were law and justice; the physician became a contractor and was forced to fill his terms. It would be far better to have a distinct understanding in these cases, should unforseen circumstances arise. Also, it would seem from this distance that a physical examination of the woman might have revealed beforehand her real condition, but this medical point was not touched by the Court. If doctors will become contractors they must be more wary or fall by the wayside. Many contracts contain the statement that the contractor is not liable to failures or delays outside of his control, and so it should be with the good family physician. If he meets triplets, let him, if possible, diagnose the condition beforehand, and being forewarned he becomes forearmed.

FACIAL EXPRESSION IN DIAGNOSING MENTAL DISEASES.

THE layman is often puzzled to determine how a physician decides in borderland cases of insanity. In the courts the other day an expert testified that a woman alleged to be a paranoiac was a sufferer from delusions, although her answers and behavior were exemplary in court. The expert explained this discrepancy by the statement that she had been tutored by her lawyer to deny her vagaries on the witness stand, although she still believed in them. The stimulus of being in court held her in check. This is often true. An insane patient placed on the witness stand may make for the time being an excellent witness for himself.

The face is an excellent index in certain diseased conditions, too little studied and too little understood. The family physician has here a great advantage, for he should be able to detect changes better than a strange physician. We can make it a working rule, as Shaw has pointed out, that the deeper the facial structure is affected, the less favorable is the prognosis as to mental recovery. The malingerer can imitate speech, dress and action, but he cannot assume the pallor or the flushing, the harsh skin, the lack lustre or glistening eye. It is in the melancholic forms of mental disease that the face is extremely diagnostic. As a rule, the head is bowed down, the face is pale, the hair unkempt, the muscles are placid, allowing the cheeks to sink, the lower jaw to drop down. In fact, the diagnosis can almost be made without further examination of the patient. This is particularly true in simple melancholia, for in the delusional

form the hallucinations often express themselves in signs of dread or horror.

Again, in the maniacal forms of mental disease, the emotions are exhibited on the face in elation, joy or cheerfulness, anger or rage; all is changeability, contrasting strongly with the dead monotony of melancholia. In acute mania the face is a playground where run, leap and gallop in quick succession joy, anger, wildness, distraction, fear, lasciviousness and sadness. If the case takes a pleasant turn, the patient may actually approve in his personal appearance, looking healthier, younger and handsomer. But the change soon comes, and the patient becomes wornlooking. In chronic mania the face becomes deeply wrinkled, the patients, especially the women, become intensely ugly. There may be fixed expression of some intense emotion, such as anger, fear, pride or vanity.

In the delirious forms of mental disease the expression is very typical: there is constant motor agitation, tremor and great loquacity; while in the stuporous forms of mental disease absence of expression or extreme fixation is common. There is no facial reaction to words, while the pupils are dilated and sluggish.

Where hallucinations exist the face expresses the emotion beautifully. Thus in delirium tremens, the face is perspiring, flushed or pale; tremor exists in the facial muscles when in action, and even in repose. The expression is tensified, the eyes injected, the pupils dilated. There is no exaltation and yet no pain; terror and apprehension are the predominating features.

In mental decay the face is most typical. In all sorts of dementia confidence can be placed in the study of the face, while in ataxic forms of mental decay, such as general paresis, the face plays a prominent part. So it is in cretinism, in moral imbecility, idiocy and other forms of psychical defect, the face plays its rôle in diagnosis. It is well to remember the importance of the face in diagnosis. To the layman it may seem an uncertain, trifling aid, but to the practiced eye it may settle a perplexing problem with promptness and certitude.

LAY PRESS CURES OF GRAVES' DISEASE.

PERHAPS one of the most unfortunate features of our civilization is the fact that from time to time we read in the columns of the lay press of alleged cures—generally at the hands of charlatans—of such diseases as consumption, cancer and tabes. Spurious claims of this sort, exploited in this manner, in vehicles of information which the public has, for the most part rightly, come to look upon as safe, must inevitably result in shattered hopes among many sufferers from these diseases, who read or are informed of these allegations. Thus oftentimes ensue fatal results which might not have proved so had these victimes preferred the conscientious and scientific advice of medical graduates.

We have before us a case not quite of this sort, for two reasons: the physician quoted is an excellent and well-intentioned man, the statement of whose work was probably transferred from the columns of a medical journal; and the case is one of Graves' disease, in which the prognosis is not nearly so serious as those we have mentioned. Still, let the professional reader judge if even such a report is not capable of interpretation which must prove baneful and of raising hopes which may by no means be realized. We condense:

A serum has been discovered for the cure of exophthalmic goitre or Graves' disease. This complaint has heretofore been considered practically incurable, except by operation. (A number of harrowing symptoms follow in detail.) The disease is caused by a superfluous secretion by the hypertrophied gland of too much of its regular fluid; or else, owing to its diseased condition, it makes some poison which infects the body and leads to death. The new serum is made from human thyroid glands so diseased. Five cures have already been effected by it. A permanent cure can be accomplished in two weeks, in which time the patient receives a hypodermic injection of about twenty drops of the serum every other day.

There are at least four theories of the etiology of the disease: that it is a pure neurosis; that it is due to lesions in the medulla or sympathetic nerve; that the parathyroids play an important part in the pathology and that their atrophy may be the cause of some of the more serious symptoms; to these three there may be added as a fourth, that above presented, in the rather loose phraseology of the lay reporter. In the present state of our knowledge of the disease one cannot proclaim any among these theories as being correct, to the exclusion of the others. Assuming the neurosal theory or that of the medulla and the sympathetic, as being the correct one, no serum will be effective. Moreover, cures have been claimed (and made, no doubt) under other treatments. Nor has surgery provided an absolute cure, by any means.

With regard to prognosis, cases presenting the essential symptoms of Graves' disease have subsided within a few days; cases developed from fright have followed this brief course, without any specific therapy. In such a case a serum might have been claimed as the essential remedy. On the other hand, death has supervened within a few days in acute cases. Generally speaking the disease lasts several years. There may be spontaneous recovery at any time within a year of the development of the symptoms. Recovery under ordinary treatment is rare in advanced cases, and here we are inclined to doubt the efficacy of any serum.

The point is, that with regard to any therapeusis,

data should not be submitted to the laity until the profession is practically agreed, after exhaustive investigation, that a suggested line of treatment will certainly make good its claims.

JOHN WESLEY'S "PRIMITIVE PHYSIC."

NO doubt most of us, in thinking of this great man, associate him with the religious field. He appears, however, to have been also the author of the very meritorious medical work having the above title.

It is natural that he who preached cleanliness to be next to godliness should in his treatise have laid great stress upon the use of water, both internally and externally. He was, indeed, so far as we know, the first writer upon hydrotherapy in medical history. Most of his receipts recommend water in some form or another.

Some of the remedies prescribed were rather heroic: For an acute catarrh (which he picturesquely termed a "running at the nose") the patient was advised to sniff up a teaspoonful of spirits of hartshorn. They must have had strong noses in those days. For a cold in the head one was to "pare very thin the yellow rind of an orange, roll it up inside out and thrust a roll into each nostril." The sufferer from ague was to "apply to the stomach a large onion slit." For violent colic a live puppy was "to be held constantly upon the belly;" an operation for appendicitis would have been more effective. We fear many deaths followed upon such colics, which puppies were quite unable to prevent. Turpentine was to be applied to a "cut that festers." "For dull sight drop in two or three drops of juice of rotten apples often." The thin skin of an egg shell was advised to be used for a court plaster. For the prevention and cure of toothache the teeth were to be rubbed often with tobacco ashes or one was to be electrified through the teeth; or roasted parings of turnips, as hot as could be endured, were to be placed behind the ear; or a bruised leaf of betany was to be put up the nose; or a slice of apple slightly boiled was to be held between the teeth.

The first edition of Wesley's work was published in London in 1747. Many years later Bishops Coke and Asbury recommended it to their American followers. They recognized the differences in the two countries regarding climate, the constitutions of patients, and even the qualities of simples. So that they had Wesley's treatise revised for American use by Dr. Wm. M. Cornell, of Berkley, Mass., who practiced in Boston in 1845. Cornell added precautionary and explanatory notes and some receipts suitable to our climate.

GRAFT IN PUBLIC OFFICE.

THE public and, in patricular, medical and scientific circles have recently been scandalized by the announcement of grafting by men of high position in government employ. So far as we can learn, the charges made are that government experts in sanitary maters have received compensation from outside sources for outside work. We do not attempt to pass judgment upon any particular case, in the absence of exact understanding of the circumstances. Yet, we venture to point out that the ethical question is not so simple as it appears to some persons. Obviously, an official, paid to do certain work by his regular salary, is dishonest if he demands private compensation for the same. Obviously, too, he is dishonest if he neglects his regular duties to engage in outside occupation at extra pay. It is at least in bad taste for an official to make use of his public advantages to advertise his private attainments and to secure private engagements. And still, we would scarcely assent to the general principle, so commonly declared or implied, that when the public employ a servant they monopolize his entire earning capacity. There is no question but that the public servant should be as free as any individual working for himself or for a private employer, to enjoy ordinary recreation and society or to engage in study, after office hours or, when the nature of his occupation is such as to do away with definite hours of labor, after he has rendered reasonable service in his office. The sole qualification that we would be disposed to admit to this statement is that there should be nothing in the disposition of the hours of leisure to interfere with the proper performance of official duties. We can, personally, see no reason why the man who would rather work than play in his hours off duty, should not do so, with the same qualification that his work must not disqualify him for the proper performance of his duties—and this qualification includes the prohibition of occupations detracting from reasonable standards of dignity and personal influence.

"Thou shalt not muzzle the ox when he treadeth out the corn," says the second law to the Jews. In other words, reasonable personal use of commodities is to be granted to servants of all kinds. The exact limitations of what we moderns call graft, cannot easily be set, but must be determined by individual circumstances and, largely, by precedent. In regard to the particular class of public servants under discussion, it seems to us that they should not only be allowed but rather encouraged to have extra-official employment of their services, under proper circumstances. Generally speaking, the scientists, physicians, engineers, explorers and other professional men employed by the government are worth more than their salaries and yet it is not practicable to increase their salaries commensurate with their indi-

vidual or even average value. Whatever the salary, to lay down the rule that no other avenue of gainful occupation be open to the government employee, will tend to kill the ambition and to drive the energies of the employees into petty hobbies, of no value to any one or into mere diversion.

In our humble opinion every professional servant of the government, surgeon, bacteriologist, archæologist, engineer, librarian, etc., should be a man in touch with other workers in the same line, and he should be a man of good standing and reputation, according to the nature and grade of his work. In the highest grades of public service, these men should be—as indeed they often are—men of eminence and wide renown. If this condition is fulfilled, it is only natural that occasions should arise when their temporary services will be needed by local governments or private concerns, and, under such conditions, we see no reason why they should make a present of their services to those well able to make compensation.

Without regard to any ethical consideration, the government—national, state, or local—has a perfect right to word its contracts with its employees so as to forbid any outside compensation whatever. Wherever tried, this plan involves dissatisfaction and individual injustice, but the only really serious objection to it is that it tends to reduce the quality of the public servant. But let us be consistent: if the city physician is to be forbidden to take a private case, if the health commissioner must confine his usefulness to his own locality or must render gratutitous service elsewhere, if the savant in national employ must never give a lecture or write an article for pay, let us also cut off the little favors which the army and navy grants to officers and their families, let us make the President pay his own railroad fare on all occasions and prohibit his special trains.

THE HENRY PHIPPS INSTITUTE.

THE second annual report of this institution, which is devoted to the study, prevention, and treatment of tuberculosis, is—as was its predecessor, the first report—a most notable contribution to the literature of this subject. The director, Dr. Lawrence F. Flick, himself in his early manhood a consumptive, has since been an earnest student of the disease. He has studied with understanding; and in his case the combination of facts gleaned and of native sense has resulted in wisdom of the highest order, wisdom of the greatest value to the body politic. And Dr. Flick has gathered about him scientific men whose investigations, added to his own, have produced the important volume which now lies before us.

Dr. Flick holds, and we believe rightly, that tuberculosis is mainly the result of the artificial conditions of indoor life. This disease is implanted in the house; develops in the house; and matures in the house. Without the house, then, he maintains, there could probably be no tuberculosis, "at least as a cause of death." Here is a sweeping statement which will probably surprise many among us. However, upon mature reflection the physician will no doubt conclude that Dr. Flick is right.

What, then, are the steps which should logically follow? Human beings should live and work in houses properly constructed and maintained. Particularly should shops and factories be sanitary; and schoolrooms, in which children spend so many hours during the formative period of life—both physically and mentally—should be wholesome and healthful. In all enclosures, cleanliness, ventilation, drainage, comfort and convenience should be required and maintained.

All this is very easy to state, but how is it to be done; how are tenements to be secured for the poor, who are most prone to tuberculosis—tenements built primarily for promoting health rather than for returning income on investment for the builder? Modern tenements, built by the philanthropically minded, are at best but drops in the bucket. For the consumptive poor the problem is even more difficult, as Dr. Flick explains with his customary lucidity, and out of his rich experience in this disease. The consumptive has to seek the most wretched and unwholesome of all the tenements; his coughing and his other symptoms are so objectionable to neighbors that landlords want to get rid of him. The tuberculosis laborer can earn but little; "he is often without money on rent day," and so it follows that only the houses which do not rent well are open to poverty stricken consumptives, who "circulate in the worst and most unsanitary houses, and infect each house into which they move."

As to treatment, this second annual report has but little new to offer; rest, nourishing food, and fresh air remain the fundamentals. These are unfortunately the three luxuries which the poor are least able to command. "Under the goad of necessity they neglect the disease until it has begun to incapacitate them." Thus then the tuberculosis problem presents about the following features: the advice to those having unexplained symptoms extending beyond the limits of an acute illness, to consult a physician; the early diagnosis by the physician; hygienic housing conditions; the care of the very poor in such manner that philanthropy will not pauperize them.

THE HEART IN TUBERCULOSIS.

BOTH Bodington, the English pioneer of modern phthisiotherapy and his Teutonic co-worker, Brehmer, laid stress upon the undersized heart in the causation and pathology of this disease; they

believed, moreover, that small aortas and small vessels were also factors. This position has always been a thoroughly scientific one; for a body with insufficient circulatory equipment must needs be starved for oxygen; and the tissues of such a body must surely be an inviting soil for the growth and propagation of bacilli. Brehmer in his therapeusis took into consideration the small heart; for he sought to develop and strengthen this organ by requiring his patients to take carefully graded exercises among the hills of Gœrbersdorf, where he placed his sanatorium. It is said, indeed, that he selected this village as a site because the hills about were adapted to this phase of his treatment.

Few phthisiologists have disagreed in this respect with the two great physicians who began the modern treatment of consumption. Woods Hutchinson, however (*N. Y. Med. Rec.*, March 13, '06), goes to the extent of declaring that the heart is alone to be considered and that no attention whatever need be paid the lungs. This is an extreme view—and extreme views are always dangerous ones; besides, it is an unscientific course to pursue in any disease to treat one organ or tissue alone and ignore the rest. Hutchinson had much better have simply laid emphasis upon the treatment of the circulation, without advising in addition that the other organs be neglected. This is, however, the only criticism one would make of his paper, which is indeed a comprehensive and valuable one. He well declares that the consumptive type has been so variously described that the whole race might well be included in the category. There is the type with clear skin, bright, expressive, luminous eyes, aquiline nose, slender figure, tapering fingers and blue veins. Again, there is the swarthy type, stupid, thick-skinned, dark-haired, heavy featured, squat built. Another is the red or tawny haired, freckled skin, and dark eyes, eyebrows and lashes. Unusual tallness of stature is a very predisposing factor; in all men of six feet and all women above five feet seven who have reached their maximum height before the eighteenth year the disease is to be feared and guarded against. In all giants the heart is undersized. Hutchinson declares the rate and quality of the pulse to be the most important single symptom with regard both to diagnosis and prognosis. Rest is imperative for all patients who have a persistent afternoon temperature of 100° and over. He would counsel "enormous overfeeding." This is a mistake. All food which cannot be digested is as a poison within the system, besides which the digestive organs are thereby overtaxed. The feeding should be generous—as much as can be assimilated and metabolized—and no more. His opinions concerning fresh air are now shared and approved by all physicians.

BIBLIOGRAPHICAL

Consumption: Its Relation to Man and His Civilization. Its Prevention and Cure. By John Bessner Huber, A.M., M.D., Fellow of the New York Academy of Medicine; Member of the National Association for the Study and Prevention of Tuberculosis; Visiting Physician to St. Joseph's Hospital for Consumptives. Cloth, pp. 536. Price, $3.00 net. Philadelphia: J. B. Lippincott Co., 1906.

In this carefully indexed volume the practitioner will find an exhaustive up-to-date presentation of the modern methods of prevention and cure of tuberculosis. The means of cure—tents, outdoor paraphernalia of all sorts, dispensaries, hospitals, sanatoria, farm colonies are authoritatively described, as are also the subjects essential in practice with regard to this disease—early diagnosis, symptomatology, the technique of examination, and of casetaking, the classification of cases, the use of tuberculin, the staining of the bacillus; milk and meat inspection, disinfection, hydrotherapy and "hardening." The work is indeed a cyclopædia upon this theme. Dr. Huber has, besides preparing a handbook for the practitioner, provided also a comprehensive exposition of the effect which consumption has had upon civilization. He has considered its all-pervading relation to human affairs, believing that it is essential to view the subject thus broadly. He has recognized that medical science must call to its aid many other phases of activity—sociological, legislative, humanitarian—if it is to make the fight against the Great White Plague successfully. The book, therefore, is addressed both to the physician and the layman. The History of Consumption, the Specific Cause, Predispositions, Economics, the Home, Administrative Measures, Non-Governmental Activities and many other phases have adequate and ample exposition. There is an exhaustive list of public and private sanatoria, homes and camps. The book is profusely illustrated, and both the author and the publisher are to be congratulated upon its generally attractive appearance.

The Health-Care of the Baby: A Handbook for Mothers and Nurses. By Louis Fischer, M.D., author of "Infant Feeding in Health and Disease," "A Text-Book on Diseases of Infancy and Childhood"; attending physician to the William Parker and Riverside Hospitals, etc. 12mo., cloth, 166 pages. 75 cents, net; by mail, 82 cents. Funk & Wagnalls Company, New York.

This hand-book for mothers and nurses will be especially timely, now that the baby's most trying period, hot weather, is at hand. The book covers the subjects of feeding in health and disease; gives directions for the management of fever, and is a guide during such diseases as measles, croup, and skin diseases, and gives ample advice in cases of accidents, poisoning, etc. The correction of bad habits, and the management of rashes, have received careful consideration.

Surgical Suggestions. Practical Brevities in Surgical Diagnosis and Treatment. By Walter M. Brickner, M.D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York; Editor *American Journal of Surgery*, and Eli Moschowitz, M. D., Assistant Physician, Mount Sinai Hospital Dispensary, New York; Editorial Associate *American*

Journal of Surgery. Duodecimo; 60 pages. Cloth, 50 cents. New York: Surgery Publishing Co., 1906.

This little book is novel, not only on account of the many original, terse and epigrammatic practical suggestions given, but in its general appearance and attractive form. It contains 250 suggestions grouped under proper headings and its contents is carefully indexed. While some of the items are familiar to the practical surgeon, they are presented in a manner that will impress them on the reader's memory. The text is printed upon India tint paper with marginal headings in red. This book will be appreciated by the general practitioner, not alone on acount of the value of its contents, but as an artistic bit of book making.

Uric Acid. The Chemistry, Physiology and Pathology of Uric Acid and the Physiologically Important Purin Bodies, with a Discussion of the Metabolism of Gout. By Francis H. McCrudden. Octavo; 311 pages. Price, $3.00. New York: Paul B. Hoeber, 1906.

The results of the author's four years' study at Harvard University has led him to the conclusion that rheumatic diseases and uric acid metabolism do not at the present time seem to be closely related, contrary to the views of Haig and other eminent writers on this subject. It is even asserted that Haig's views are entirely unwarranted!

The author has made a thorough study of the pure chemistry of uric acid, and of its decomposition products, and of those purin bodies which have physiological importance; of the behavior of uric acid in solutions of pure water; in the solution of simple and mixed electrolytes, and of organic compounds; and in the urine and blood. He has attempted to study all the research that has been done on the physiology of uric acid, the effects of food, and of the qualitative and quantitative change in the food, the effects of alcohol, exercise and other physiological functions, and also the research on uric acid in pathological conditions of all kinds, especially in gout. The material has been arranged systematically for practical study, adhering closely to exact statement of experimental data.

The book is a great addition to the literature of this important subject.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia, assisted by H. R. M. Landis, M.D. June, 1906. Vol. II. Octavo; 368 pages. Price, $6.00 per annum. Lea Brothers & Co., Philadelphia and New York.

The subject of Hernia is discussed by William B. Coley, M.D.; Surgery of the Abdomen exclusive of hernia, by Edward M. Foote, M.D.; gynecology, by John G. Clark, M.D.; diseases of the blood, diathetic and metabolic diseases, and diseases of the spleen, thyroid gland, and lymphatic system, by Alfred Stengel, M.D., and ophthalmology, by Edward Jackson, M.D. These papers are all of the highest order and worthy the attention of the reader who would keep abreast of the times.

CORRESPONDENCE

HOW I COLORED THE OLD MAN'S HAIR, "FOR TRUTH IS STRANGER THAN FICTION."

To the Editor of THE MEDICAL TIMES:

Perhaps it was because he knew more of the philosophy of art than of its actual practice that the old gentleman called upon me one pleasant afternoon, shortly after I had returned from college to take up the exacting duties of medical practice, and I would have it distinctly understood that he had been a lifelong friend of our family, consequently, as he entered the office, I received him with the becoming dignity his manner always elicited. Now, it so happened that some four years previous the old man's wife had died, and as is not uncommon in such cases, several matrons of rather prepossessing appearance had smiled on him, and had somewhat fired the old man along matrimonial lines; at any rate, he informed me that he had been waiting until I should return from college, believing that I could assist him in a certain way, and requesting that all must be strictly confidential. Having assured him of my profound regard in this respect, he proceeded to say, that he had decided to marry, that he had found a lady willing to join hands and fortunes with him, but that, she being some years younger than himself, had quietly spoken to him concerning certain marks of age which, she being an artist herself, thought might possibly be remedied (by a process, says she, which I hear the young of our higher schools are being taught, and which, in the main, has been successful). And then it was that the old gentleman informed me that it was his silvery locks to which she referred. Hereupon he drew from his pocket an old deguerreotype to show me just how he had looked when he was young, remarking that perhaps it might be a help to me as we proceeded with his case. If there is one thing above another that a fellow overlooks when attending medical college it is how to do the little things. To be sure, we can tell you how to do a hip-joint amputation, describe the life history of the bacillus anthrax, or give the psysiologic action of the digitalis group in full, and yet when the old man asked me to color his hair, positively stating at the same time, that he wanted none of that patent stuff used on his head, I must frankly confess that I did not know how.

Whether this lack of ready knowledge was the fault of those engaged in teaching me, or whether the fault of myself in failing to inquire, I don't know, but I have often since thought that our professor of chemistry knew more on the subject than he cared to tell, himself being a widower, but be this as it may, and realizing that I knew absolutely nothing on the subject, I thought fast, and while the old man was still talking resolved to argue him out of his determination to color his hair, and thus avoid the difficulty. But any one who has ever attempted by argument to persuade a man adversely on any matter relative to matrimony, will immediately surmise just how well I succeeded. So when the old man had finished, I addressed him thus: "Mr. H., it would seem to me that a man of your age and intelligence had better be content by letting good enough alone. Surely gray hairs are honorable, and the possessor of them fortunate. To my mind they are a mark of

surpassing beauty, a thing to be desired; and, above all, the Bible speaks of the hoary head as a crown of glory." "While on the other hand," quickly put in the old gentleman, "Ruskin says that the ascertainment of the sanctity of color is not left to human sagacity; furthermore, it is distinctly stated in Scripture that the Sacred Cord of the Tabernacle was one of color, blue, purple, and scarlet, which cord, says Ruskin, is the fixed base of all coloring with the workmen of every great age, the purple and scarlet being constantly employed by noble painters in various unison to the exclusion, in general, of pure crimson; it is the coloring described by Herodotus, as used in the battlements of Ecbatana, and the invariable base of all beautiful missal painting. Now in the Cord of the Tabernacle the scarlet is the powerful color, and is, on the whole, the most perfect representation of abstract color which exists, blue being in a certain degree associated with shade, yellow with light, and scarlet, an absolute color, standing alone; accordingly we find it used together with cedar wood, hyssop, and running water as an emblem of purification and representative of the color of blood, since it also was to be dipped in the actual blood of a living bird. So that the cedar wood for its perfume, the hyssop for its searchingness, the water for its cleansing, and the scarlet for its kindling or enlightening, are all used as tokens of sanctification, and it cannot be with any force alleged," continued the old man, in opposition to this definite appointment, "that scarlet is used incidentally to illustrate the stain of sin any more than it could be received as a diminution of the authority for using snow-whiteness as a type of purity, because Gehazi's leprosy is described as being as white as snow; therefore," says he, " it is useless for you to argue that the absence of color signifies any greater worth or purity than its presence." "Perhaps you have taken a too exalted opinion," I quickly put in (and before the old man could bring any other dead shot to bear on me), "if white is the presence of all color, and black the absence of the same, then surely *he is richer who possesses all.*"

"All men completely organized and justly tempered," retorted the old gentlemen, "enjoy color; it is meant for the perpetual comfort and delight of the human heart; it is richly bestowed on the highest works of creation, and the eminent sign and seal of perfection in them, being associated with life in the human body, with light in the sky, and with purity and hardness in the earth, death, night, and pollution of all kinds being colorless." "But," says I, "since you insist on Ruskin as your guide, you must remember that death, night, and pollution are formless, cannot be expressed, know no bounds, having neither length, breadth, or thickness; but if a work of form and color be brought into complete opposition so that it should be put to us as a matter of stern choice whether we should have a work or art, all of form, without color, or all of color without form, I think form is beyond all comparison the more precious of the two, and in explaining the essence of the two objects, form is esesntial, and color more or less accidental." "Yet, if color be introduced at all," says he, "it is necessary that whatever else is wrong, *that should be right;* just as the music of a song may not be so essential to its influence as the meaning of the words, yet if the music be given at all, it must be right, or its discord will spoil the words, and it would be better of the two that the words should be indistinct than that the notes should be false." "But natural coloration cannot always be perfectly imitated," I suggested. "Not by an amateur," says he. And so it was that by a series of give and take we perhaps passed an hour or more, when the old man said: "To come back to the subject, doctor, can you color my hair?" Having tackled him on what I then learned was his own ground, and still being afraid to reply in the affirmative, I thought, perhaps, if I took him more generally into the chemistry of the subject, I might possibly escape by some hook or crook, or at least scare him into taking my advice, which, of course, was only concerned in not exposing my lack of knowledge, and what the old man would have termed "preparation."

Now, it must be remembered that although the thing aimed at was to simply color a head of hair which had turned silvery white to one of jet black (as shown in the deguerreotype), it is necessary that the reader keep constantly in mind that this event to the old man was only second to the time when, years before, he had taken a similar step; again, when the heart is young, all the world seems gay, but when it is old, we measure things more by comparison; so, should any one be so unjust as to attach but little importance to the incident, let him remember that he may grow old likewise, and what is more, perhaps desire to marry. In the first place, the old man wanted his hair colored, and had determined within himself to allow none of that patent stuff to be used on his head, and that was No. 1.

In the second place, I was fresh from college, supposed to know everything and a little more, which, coupled to the fact that all of a very well to do relationship perhaps awaited my success or failure, thereby to be governed by the old man's recommendation whether to afterwards employ me or not, and that was No. 2.

For, is it not true, after all, that the small things await our care, while the large ones generally care for themselves? I think my physician friends believe so, anyhow. Then again, a thing well done is always a recommendation for the doer, and may become a perpetual monument to whatever he rears; indeed, upon our doing and saying is all there is in life after all, and the thing done in nearly every instance outweighs the thing said, the two being identical. Again, much of what older people do is mechanical, while the thing done in youth is more often the true measure of the man. To change a head of silvery white hair into one of raven black seems simple enough, and it is simple, if we may judge by analogy, and yet bankers have not done more, neither may they do so much, abstractly speaking; for he who attempts to direct nature, attempts all, while he who directs the affairs of finance, masters but an infinitesimal part of a great whole. It will some day be found that Nature has a great end in view when she either adds or subtracts color, if indeed it be not found to be the measure of life itself as regards its physical interpretation. So it is with light and shade, says Ruskin, for looking from the bright sky to a piece of white paper we affirm the white

paper to be in shade; *i. e.*, it produces on us a sensation of darkness, by comparison, but the hue of the paper and that of the sky are just as fixed as temperatures are; and the sky is actually a brighter thing than white paper by a certain number of degrees of light, scientifically determinable. In the same way every other color, or force of color (for color is a force), is a fixed thing, not dependant on color sensation, but numerically presentable with as much exactitude as a degree of heat by a thermometer. Again, several of the colors are naturally transparent; these are sienna, asphaltum, dragon's blood, carmine, rose pink, and all the lakes and gums, while semi-transparent colors are umbers, vandyke brown, emerald green, brunswick green, ultramarine, indigo, and verdigris. Therefore a chemist unacquainted with the purposes of a pigment will hardly give an analysis of value when testing colors; true he can give the constituent parts, but of what use is that by itself? Purity of tint may be a matter of more value than any description of a color's elements; a blue might be absolutely pure from a chemist's standpoint and yet be of small value to the painter. Professor Nelson says that in decorating a ceiling or wall the painter must follow the same principle as the artist follows in painting a landscape. For instance, if you have a red brick wall close to you in the landscape or view you intend to paint, you must, in painting the wall on your canvas, use the same color that has been used on the wall itself. If you move a mile away from the wall you can no longer use the same color, for the color of the atmosphere has, so to say, coated over the wall with a color of purplish blue or grayish blue, as might be the case, which would turn the red into a lighter or more purplish color. Move the brick wall away to the horizon and you will find that it appears no longer red, but a light purplish color; because so much more of the color of the atmosphere lies between your eye and the obect. On the same principle, we might say that the air is orange colored, and the sun blue, and while both are seemingly absurd, yet they are demonstrably true; if we but understand what they mean.

Having matched my chemical, with my patient's philosophy of color, hoping thereby to gain time, and perhaps prevent an intellectual disaster, a happy thought occurred to me. Why not color the old man's hair by a regulation of such natural processes whereby colors are made to subserve various ends? And having fully explained to him my full meaning, somewhat after this fashion, he thought it a capital idea. Says I, pigment granules are elementary bodies that precede cells and that still in some cases exist within them, the native pigments being classed under five heads.

1st. Pigments of direct physiologic importance such as Hemoglobin and Chlorophyll.

2d. The derivatives of such pigments.

3d. Waste products, such as uric acid, to which the white color of the garden white butterfly is due.

4th. Reserve products, such as are found associated with fat, and including the coloring matter of carrots, beets, etc.

5th. Introduced pigments, such as pigment taken up by a parasite from its host chlorrophyll from larvæ, etc. The micrococcus prodigiosus growing on moist bread producing the miracle of the bleeding host. The beautiful pigments of birds' eggs being entirely derived from the blood shed in the bursting of the Graafian follicles, while Biliverdin and Hematoporphyrin respectively produce the green blues and the red browns of the combs and wattles of birds. The color pigments which produce the colors of fruits and autumn tints seeming to be associated with a diminished power of assimilation and growth, likewise the senesence of the nerve is accompanied with increased pigmentation.

The old man was delighted, for was not his philosophy and my chemistry proving itself? Away with cosmetics, away with art! Had he not emphasized the harmfulness of "that patent stuff?" He had not awaited my return in vain, he went on to say. Poulton, I continued, has changed the color of larvæ by feeding them in turn on the green leaves and the white midribs of cabbage leaves. Cunningham has caused the under surface of soles to become pigmented by illuminating the base of the aquarium with mirrors, and Schroder has changed certain larvæ from one color to another by placing them on colored papers. Crustaceæ have been bleached by keeping them in caverns, while the colorless inhabitants of caverns have been pigmented by transferring them to the light; consequently the absorption and utilization of light energy, or the protection of protoplasm against light, together with other and various food values, must certainly be amongst the first functions of pigment.

"Capital! capital!" fairly shouted the old man. "Let us begin at once!" Thereupon I formulated the diet, and advised the old gentleman to go bareheaded by day, and while he slept, I concentrated, by a series of cleverly arranged mirrors, specially prepared electric light upon his head.

It is said that for a man to be successful in any undertaking he must not only have faith in it himself, but must likewise have confidence, and believe strongly in himself; and I do not know that at that time, and especially in this particular instance, I lacked either, at any rate, when I began the experiment, the old man's faith was unwavering. Yet it soon became apparent to myself that we were simply chasing the will-o'-the-wisp; and still, from very fear's sake, I said nothing, knowing too well the importance of the undertaking, which, of course, meant wife or no wife, and withal, without cosmetics being the ultimatum, as I afterward learned, and whether I was duped into the undertaking by a woman's sagacity, or not, I likewise do not know, neither did I ever afterward learn. Perhaps she knew we would fail, perhaps she wished us to. But the strain of expectancy and watchfulness proved to be too much, and as the weeks lapsed into months, I perceptibly saw that not only was the old man's hair not coloring, but that he himself was whitening. Possibly I bleached him! Possibly my treatment was ill-timed!

I was called away about this time to finish the second half of a hospital appointment, which a student friend was kindly dividing with me, and, being gone some six months, had quite forgotten my experiment in the onrush of greater and more exciting things, when, filled with medical lore, and ready for most anything, I stepped off the afternoon train on my return home. I noticed a funeral procession passing

slowly down the street. Upon inquiry I learned to my sincere regret that it was the old gentleman who had died, and was then being buried. Of course I joined the procession, and reached the head of the column just as they were lowering him into the grave, and in time to hear from the lips of the minister his final words, which fell strangely upon me, for they were: "Blessed is the hoary head, if he but walk in the ways of righteousness." And then it was that I remembered that color, after all, is to the strong, and that the young of both kingdoms had been used in my quoted experiments.

Mifflinburg, Pa. F. B. BRUBAKER.

RETROSPECTIVE THERAPEUTICS

HETEROPLASTIC OVARIAN GRAFTING FOLLOWED BY PREGNANCY.

"I mixed those children up, and not a creature knew it," was the dreadful confession made by Poor Little Buttercup, in recounting her experiences as the matron of a "baby farm," before she took to the more lucrative occupation of bumboat woman. However, as we recall, her crime was expiated, and the tragic play of "Pinafore" ended with the tar elevated through her confession to his rightful position of ship's captain; the erstwhile captain being relegated to the foc'sle, to which humble position his penalty of birth assigned him. A greater crime, we fear, because more irremediable, was that committed by Dr. Robert T. Morris, when he performed the following operation:

Mrs. W., 21 years of age, began menstruating at 15; this function ceased at 19. Married at 18, she became pregnant soon after and had a miscarriage at the third month. During the two years previous to her entrance into the Post-Graduate Hospital, she had suffered from pelvic pain, headache, hot and cold flashes—common menopause symptoms, which steadily increased in intensity and were most marked at the regular menstrual periods. Dr. Morris diagnosed a cirrhotic overitis. He kept his patient in hospital under observation until an opportunity presented itself for obtaining ovarian grafts from some other patient, to replace her own ovaries, which were to be removed. Soon Dr. Boldt operated upon Mrs. P. for uterine prolapse; this patient was 33, the mother of three children, with normal ovaries, except for the congestion common to prolapse cases. A wedge shaped ribbon of ovarian tissue was removed from Mrs. P. during Dr. Boldt's operation, enough to relieve the congestion. Then came the operation upon Mrs. W., whose ovaries were removed with Tuffier's angiotribe. Dr. Morris used this method because the ligation methods are apt to be incomplete in assuring absolute removal of all ovarian tissue. And Dr. Morris believes that by this means *all* the ovarian tissue was removed in the operation upon Mrs. W., whose uterus and oviducts seemed quite normal. After removal of each ovary a slit was made through the peritoneum of the broad ligament on either side, parallel with the oviduct; and into each slit a segment of ovary from Mrs. P. was placed and retained by means of catgut sutures. Both Mrs. W. and Mrs. P. made good recoveries. Some four months after the grafting, on June 18, 1902, Dr. H. L. Barker, Mrs. W.'s family physician, reported to Dr. Morris that his patient had menstruated at that date, the menstruation having lasted for five days.* On March 28, 1906, Dr. Robert Lount, of Hempstead, N. Y., wrote Dr. Morris that he had under his care Mrs. W., who informed him she was one of his (Dr. Morris') grafting patients. Dr. Lount had on March 15, 1906, delivered her of a daughter weighing seven and one-half pounds; and on April 4, Dr. Lount further wrote that mother and daughter were doing well and that the mother had a good flow of milk. On April 14 Dr. Barker wrote Dr. Morris, stating that he had examined Mrs. W. when she was about four months pregnant; but on account of her distance from his circle of practice he had depended upon others for her care at parturition.

Here then would seem to be a well-defined instance of heteroplastic ovarian grafting, followed by pregnancy and the delivery of a normal child. And a number of considerations crowd themselves upon the mind of the reflecting physician:

Who is the mother of the child? Mrs. P., who furnished the ovum, or Mrs. W., who furnished the nutrition and who endured the labor pains. Evidently the child was the product of the sex cell of Mrs. P. and the sex cell of Mr. W. In the last analysis, then, Mr. W. must have had illicit intercourse with Mrs. P. Why is this man not behind prison bars, such being the case? Why is the district attorney supine in this matter? Is the public conscience indeed so dormant that it is not to be moved by this shocking immorality? It would seem, indeed, that Mrs. W. has simply adopted the child, and that the ovum of Mrs. P. retains its identity in spite of any hospitality shown by the hostess. Haeckel holds that hereditary characteristics are due to "cell memory;" and that the cell memory of an engrafted ovary may not be changed by the influence of its new host. We are not informed whom the baby resembles; perhaps—dreadful thought—it may as it grows develop the features of Mrs. P. We tremble for Mr. W. when the dear relatives and family friends come to admire the baby and declare it looks just like— However, it will be no more than this arch-fiend deserves. Another question: What will be the status of the child with regard to matters of inheritance? Would Mrs. W. still die without issue and leave a million or so to revert to some one else? Would Mrs. P. leave a fortune to her children and neglect this one, who was merely a guest in the economy of Mrs. W.? Imagine Mrs. W. the consort of a European potentate; would this child be in the line of rightful and lawful succession? Reader, lest you slight the importance of this matter, we refer you to the position maintained by Dr. W. H. Saunders, the health officer of the State of Alabama, who "would help to clarify the entire subject of fetal life, and lead to the enunciation of definite, inflexible and absolutely correct principles of jurisdiction applying thereto."

Dr. Saunders maintains that the conjunction of the male and female germ constitutes, from a scientific standpoint, birth; that the term birth should be substituted for the term conception.* Suppose Dr. Saunders were to get his views embodied in legal statutes.

Again: Who will have furnished this child with the

*For details the reader is referred to Dr. Morris' paper: "A Case of Heteroplastic Ovarian Grafting Followed by Pregnancy and the Delivery of a Living Child," *N. Y. Med. Rec.*, May 5, '06.

**Jour. A. M. A.*, Feb. 24, '06

impulse for moral and physical characteristics—Mrs. P., or Mrs. W., or Mr. W.?

There are many more considerations; but the thermometer is in the nineties and the humidity is high. Let us refer the subject for further treatment to the novelist. We only hope, in conclusion, for Mr. W.'s sake, that the influences of environment will, in the case of his offspring, eventually offset and destroy the traces of heredity.

A Common Psychologic Phenomena and Its Explanation.—In an interesting paper entitled "A New and Physiologic Explanation of a Common Pschologic Phenomena" (*Jour. A. M. A.*, March 24, '06). Dr. F. Park Lewis notes that many people have, on first viewing an unfamiliar scene, experienced the curious sensation of having seen it before, no matter how obviously impossible this may have been—as in a part of the world visited by the onlooker for the first time.

In explanation of this Dr. Lewis first presents the most commonly accepted psychologic view—that at the instant of the first glance the mind is preoccupied, and that a space of time, which may be infinite, minute and imperceptible, elapses before the intelligence can grasp the meaning of the sense impression and interpret it into a cognizable fact. In the realm of the subconscious there is no measure of time. One mental impression bears the relation to another which is not consensual with it, as being merely before or after; but how long before or after the mind is incapable of determining. The conscious sensation conveyed to the intelligence is merely that at some former indefinite period, which in point of fact is an infinitely small space of time, although it may seem years away, the same mental picture has been presented as that which is now obviously evident. Almost coincident, then, with the view, is the impression of a former view, and as they are not perfectly blended the one is associated with the memory of the other. Our dreams prove that we have no estimate of time in our subconscious state. Lewis instances the well-known illustration of the man who dreamed that he had enlisted in the British army; was sent to India; served through many experiences; deserted; was recaptured; tried by court-martial; sentenced; led out for execution; placed before the detailed squad and a volley fired. He had been asleep less than a moment and the same noise which had aroused him excited the involved dream extending over years. Every reader must have had experiences to the same effect. This reviewer recalls how as a boy he slept one night with a companion named Robbie. He dreamed in detail that he had gone to see a baseball game—the walk to the grounds, the eager and impatient waiting, the beginning of the play, the decisions of the umpire and the resulting tumult. At one point in the game the batter with a mighty whack sent the ball across the field, so that it landed with terrific force upon this reviewer's eye, who thereupon awoke to find Robbie's elbow impinged upon his orbit.

It is so—that the subconscious mind is unable to measure time. One of the greatest, if not the greatest, achievements of philosophy is that of Kant, who discovered that time (as also space) are original intuitions of reason with which sensationalism has absolutely no connection. The conception of time is an attribute of the conscious, reasoning mind. And the psychologic explanation here stated appears to us competent.

Dr. Lewis now offers another, a physiological explanation, which he considers more logical! In order that a clear and definite picture of that which we see may be conveyed to the brain, the two retinal images must be blended at the cerebral visual centres as the two views of a single scene are blended by a stereoscope. In order for an efficient working instrument the stereoscopic lenses must be focused alike; in the same way, to have a binocular blending of images in the more delicate focal adjustments which are governed by nervous action and muscular effort the eyes must be alike. Sulzer finds the accommodative act in the normal human eye to be accomplished in about 2-100 of a second. In the hyperopic or astigmatic eye the accommodative act would be produced less quickly. In cases where the focal acts in the two eyes are not coincident, it might easily take 4-100 of a second for one to accommodate, or twice the length of time for the more nearly normal eye. An interval of 2-100 of a second would thus intervene between the times that the same picture was focused upon the two retinæ and received by the brain, an interval too short to be recognized by the conscious mind, but long enough to make two distinct impresisons upon the brain, with a vague, an indeterminate, an immeasurable space of time, between. That this explanation is a correct one Dr. Lewis finds verification in the fact that those to whom this phenomenon occurs find it to disappear when focal differences are corrected by proper glasses, permitting thereby concomitant action on the part of the ciliary muscles of both eyes.*

We believe that Dr. Lewis has thus furnished a scientific physiological explanation of the phenomenon he describes. It does not, however, have the effect to set aside the psychological explanation here indicated. These are, it appears to us, both valid; and not essentially differing the one from the other.

Heart failure in Diphtheria is an extremely important subject. Cases are on record in which the happy practitioner, who has brought his little patient successfully to convalescence will be called suddenly but too late to prevent the death which has resulted from the effect of a slight excitement than upon the weakened myocardium. The convalescent in diphtheria must be very carefully watched. Bolton rightly observes (*Lancet*, Feb. 3, '06) that the treatment of diphtheria was formerly directed solely against the local lesion, the modern view inclines toward a systemic intoxication which cannot be prevented by a direct treatment of the local lesion, which is dangerous only in so far as there is mechanical obstruction of the larynx. The toxin attacks directly the nervous and muscular tissues; in the acute stage degenerative changes occur in the nucleus of the vagus and there is fatty degeneration of the cardiac muscular fibres. The muscular power of this organ is lowered and the regularity of its movements is interfered with. A large amount of the poison may suddenly overwhelm the heart and the nervous system; but, as we have observed, the later changes do not cause death unless there is some strain which the heart is unprepared to

*Dr. Lewis would be glad to receive from his colleagues verification of his test, with copies of the prescriptions showing the refractive differences in the eyes (454 Franklin Street, Buffalo, N. Y.).

meet. Most convalescent patients show some such signs of heart failure as irregular action or dilatation. To obviate heart failure antitoxin should be administered as early as possible; thus is the toxin neutralized. From four to six thousand units should be the minimum dose for an ordinary case. (We incline to the lesser dose.) In severe cases Bolton counsels from twelve to twenty-four thousand units, to be given at once; and a repetition of this dosage on the following day, if there is no improvement. There is no danger in the antitoxin—the rashes, joint pains and the like are as likely to follow small injections as large ones. A larger dose is necessary on the third or fourth day than in the beginning. Rest is essential throughout the disease; strain may induce a sudden death. In fatal cases the first signs of heart failure (irregular, small and weak pulse, together with undue rapidity or slowing) come usually about the end of the first week; and death supervenes within the first fortnight. The first heart sound in such cases is short and feeble, the impulse being diffuse and slapping. Under such circumstances the patient should be recumbent, with the head low, and undisturbed as much as possible; vomiting is especially dangerous. The bed should be kept for three weeks from the invasion; if then the heart is good the patient may sit up. At the end of a month he may walk if there are no untoward signs—otherwise the bed must be kept for weeks or months longer. Drugs, considers Bolton, are of little value in the treatment of diphtheria. With the reservation that the best curative agent is antitoxin, we do not agree with him in this. Drugs are never without value if they be used intelligently and scientifically.

The open-air treatment of tuberculosis is dwelt upon by Pettit, of Ottawa, Ill., who is very experienced in this field. The constant supervision of the patient is the most important point in which the sanatorium differs from the "home treatment." Under the former circumstances early symptoms of an intercurrent affection are noted and serious complications promptly dealt with. Medicines are used when there is occasion; their use is chiefly symptomatic. Cough, night sweats, loss of appetite and anæmia are managed generally without drugs, under the influence of rest and fresh air. Home treatment should seem simple and effective; but experience teaches it is not so, for several reasons. So many cases occur in families where it is not possible to apply the anti-tuberculosis treatment. The principles of modern phthisotherapy are not as yet accepted by the laity to the degree which is essential to their application. These principles are not yet fully understood by the average physician, and when they are they consume so much of his time and energy that it is not possible for him to attend properly to the few patients he may have under his care. For practical rather than theoretical reasons the treatment cannot be applied at home. The education of both physician and laity must come through the sanatorium—a training school which should be the center of influence in propagating the new doctrine and its methods.

Several Considerations in the Therapeutic Uses of Diet is the title of a paper by Robert Hutchison in *The Practitioner* for April, which, by the way, is a *Special Diet Number* of this excellent journal and which we commend as an admirable epitome upon this important subject. Diet in many affections is here considered; and a number of practical diet notes are appended.

Dr. Hutchison observes that there is no more ancient method of healing disease than by the use of dietetic means; yet there is none which we use with a less degree of confidence and precision. He sets forth some general rules which should always be borne in mind when drawing up any plan of dietetic treatment.

In prescribing a diet for a case of local disease, do not sacrifice the whole to the part. The organs are "members one of another;" and we must not interfere with a patient's general nutrition in the interest of any particular tissue. This rule finds its chief application in cases of dyspepsia. It is often better for a dyspeptic to endure a certain amount of discomfort after food rather than to lower his general vitality by too great abstemiousness.

No article of food should be forbidden without good reason. We should not be arbitrary; we may furthermore thus ensure greater consistency in the practice of different physicians.

Recommend in acute diseases; forbid in chronic diseases. Before recommending any article find out if the patient likes it and whether it agrees with him.

An article which disagrees had generally best be reduced in amount in the diet than cut off altogether. General and proposed dietary changes should be made gradually. Always bear in mind these three aphorisms:

Hippocrates: Such food as is most grateful, though not so wholesome, is to be preferred to that which is better though distasteful.

Sydenham: More importance is to be attached to the desires and feelings of the patient than to doubtful and fallacious rules of medical art.

Heberden: Physicians appear to be too strict and particular in their rules of diet and regimen; too anxious attention to these rules hath often hurt those who were well, and added unnecessarily to the distress of the sick.

Inebriates as a class received some little attention in a medical section at the recent Boston meeting of the A. M. A. Dr. Butler, of Chicago, declared inebriety to be a disease and that the state should have institutions for its treatment as for the insane. Dr. Hunter, of Toronto, declared that the inebriate on the street should be more humanely treated. He should be taken to hospital and have the best of nursing and medical attention. "He is in a more dangerous condition than a man with a broken leg, and should have better care." This seems to us to be coddling to an unnecessary degree. They do not seem to have heard in Toronto of that "special providence which takes under its care children and drunken men." It is noteworthy how seldom the latter get hurt, while making intolerable nuisances of themselves.

The nature and treatment of rheumatism are discussed by Deeks (*N. Y. Med. Jour.*, March 3, '06), who believes that many painful conditions regarded as rheumatic have nothing to do with this affection. He finds the disease to be invariably associated with hyperacidic or fermentative gastric disorders. The stomach condition is either the primary factor, or at least an antecedent feature, preparing the way for the invasion of some specific organism. A large part of the sugar ingested undergoes gastric fermentation be-

fore entering the small intestine, by being acted on by the various organisms in that organ; one of the products is lactic acid. These fermentative processes do not occur in every person. The rheumatic diathesis is probably associated with deficient power in the assimilation of carbohydrates. Salicylic acid is a powerful agent in preventing fermentation of all kinds, including lactic acid. The regulation of the diet is of primary importance. Sugar and potatoes are to be excluded, and bread limited, especially toast. If fermentation persists twenty drops of dilute nitric acid should be given well diluted before meals for several days; constipation requires rhubarb and soda after meals. Deeks recommends also such counter-irritants as electricity—either static sparks or high frequency currents. We would not ourselves follow this suggestion.

In scarlet fever the throat, although it has been considered to play an important part in the retention of infection, is probably only rarely the source in the later stages; on the other hand, abnormal conditions in the nasal passages are often associated with signs of retained infection. Otorrhœa undoubtedly constitutes a danger. It seems that the infectious agent is not present in the desquamated cuticle. Apart from this, however, return cases may arise from cases in which no morbid condition has been detected; furthermore, a morbid condition may develop for the first time, or recur, after the patient has been considered recovered. Under these circumstances freedom from infection cannot be definitely ascertained; and it is evident that precautions should be continued after isolation is discontinued. Such articles as cups, handkerchiefs, pillows, sheets, blankets, sofa cushions, towels, toys and the like, which are liable to come in contact with the mouth or the nose of other persons, may transmit the disease if smeared with infectious secretions. On the other hand, secretion deposited elsewhere cannot, in general terms, come into action until dry and pulverized; and when due allowance is made for the influence of light, dessication and starvation upon the virulence and vitality of all pathogenic organisms, it must certainly be seldom that germs in dust are received in sufficiently potent dose to cause the disease.

Lumbago is treated by Frauenthal (*N. Y. Med. Jour.*, June 2, '06) by means of an initial hypodermic of morphine (⅛ to 2-3 gr.) at the seat of pain. When there is acid fermentations, indigestion, he employs alkalines and antiseptics. Sodium, potassium and strontium iodide are very effective in absorbing the serous exudate in lumbago fibrositis. Salicylic acid and colchicum aid recovery. Externally the actual cautery, mustard, the hot air bath, hot packs, dry heat (by means of hot plates or flat irons) are useful as counterirritants. Local massage is often valuable, as is also mechanical vibration. Acupuncture sometimes yields brilliant results; a needle three inches long is inserted into the lumbar muscles and allowed to remain from five to ten minutes. The galvanic, faradic, static and high frequency currents relieve the pain in various degrees. The author has cured many cases by covering the area involved with tincture of iodine and then inducing cataphoresis by applying the galvanic current for five minutes; after this he again covers the area with oil of gaultheria, and applies the high frequency current for fifteen minutes; then the vacuum tube is held out a distance of one-fourth of an inch for two or three minutes, to produce irritation. After this treatment, "persons who were helped into the office in excruciating pain have walked out feeling almost free from suffering."

The Russian Red Cross Society, declares Hobb (*N. Y. Med. Rec.*, May 19, '06), has not only aided the military medical department by supplying necessary materials not furnished from the army medical magazines, but has also provided trained nurses, organized its own hospitals, flying detachments, diet and rest stations, hospital railway trains, hospital boats, and the like. It has also taken an active part in the transportation and distribution of the sick and wounded, and has as well looked after their wants in the field, on the lines of communication and at home, supplying them generously with clothing and with every essential to their comfort.

The dissemination of typhoid fever by ants seems to have been observed by S. Mayer (*Munch. Med. Woch.*), who inoculated some mice with the bacilli of mice typhoid and put them in a cage on a window-sill. At a distance from these of some eight inches were other mice, inoculated with para-typhoid, human-typhoid, etc. The first lot died in a few days, while the latter remained quite well. But the cage of the latter mice, having afterward been removed to the same window on which the first mice had died, they soon sickened and died with the symptoms of mice-typhoid. And bacteriological examination disclosed the bacilli of this form of the disease. As a few days before the transfer of the cage ants had appeared on the window-sill they were suspected of having transferred the infection; they were therefore caught and placed on culture media, where they perished within forty-eight hours. Soon colonies appeared on the ant tracks, and these colonies were proved to be of mice-typhoid bacilli. It would thus appear that these bacilli (and if they, why not human bacilli?) can enter and pass through the body of the ant, thus propagating the infection.

Eclampsia is not always characterized by the pressure of albumin in the urine; the latter condition is present in fully eighty per cent. of normal pregnancies. Albumin and casts are found in at least thirty per cent. of all pregnancies. There is thus no reason to suppose that the renal condition is the cause of eclampsia (P. K. Brown, *Jour. A. M. A.*, Jan. 13, '06). There is, however, probably some connection between the albuminuria and the extrarenal cause of the eclampsia; for the two are nearly always associated. Neither any normal end product nor known intermediary product of metabolism is the cause of eclampsia. In some cases deficient thyroid or parathyroid activity probably plays a part. Experiment has demonstrated the fact that there are toxic substances formed in the placenta which are probably responsible; these substances probably cause the headache, œdema, abdominal pain and especially the albuminuria present in non-eclamptic and non-nephritic cases.

Injuries to the Child's Head during Labor was an important subject discussed at the recent meeting of the A. M. A. Dr. B. Sachs, of New York City, spoke of his efforts through many years to interest both the obstetrician and the general practitioner in this subject and of his belief that there are many

imbeciles, paralytics and epileptics living to-day who might have been normal if delivery had been properly performed in their cases. In his experience many cases of infantile cerebral paralysis were either primiparal, or such as had been born after prolonged, often dry, labor. Statistics seem to prove that there is less harm done by forceps delivery than by prolonged labor, although *unskillful* manipulation of instruments is of course attended with disaster. If the life of the mother is not endangered thereby, it were best to curtail the period of labor as much as possible, and not to wait until the child's heart action becomes feeble. Sachs refers to Cushing's suggestion to open the skull at birth in severe cases of meningeal hemorrhage and to wash out the blood clots. In three out of five cases thus operated upon a cure seems to have been effected. Such a daring procedure is, however, of limited application. In general dependence must be placed upon prophylactic measures and upon skilful manipulation during labor. Sachs (himself a neurologist) believes that obstetricians have been too indifferent towards the welfare of the child, permitting labors to be unnecessarily prolonged and "in conditions of distinct disadvantage to them and to society for the entire period of their natural lives." Dr. Gilbert, of Louisville, has in appropriate cases, induced labor, especially in primiparal, two or three weeks prior to the full term; he employs a tampon soaked in a glycerine solution and never introduces an instrument within the uterus for this purpose.

How the Fight Against Tuberculosis Now Stands is considered in *The Lancet* (May 26, '06) by R. Koch, who recapitulates the essential facts regarding infection in this disease. He declares that only tubercle bacilli emanating from human beings need be taken into account, the bovine bacillus being harmless to man. To this declaration many will take exception; especially is it inadvisable, in view of our late meat scandals, to encourage laxity in meat inspection. In all else, however, one must agree heartily with Koch's statements. Only those tuberculous patients who suffer from laryngeal or pulmonary tuberculosis and whose sputum contains bacilli are dangerous to those about them to any degree worth noting; this is the *open* tuberculosis in contradistinction to the *closed* form in which no bacilli are given off to others, and which is quite harmless. Even the *open* form is harmless, provided the bacilli are properly disposed of. The patient becomes dangerous only when he is personally unclean, or so helpless (in the advanced stages) that he can no longer attend to the proper disposition of his sputum. The danger of infection of the healthy increases with the impossibility of avoiding the immediate neighborhood of a dangerous patient. With regard to preventive measures obligatory notification is essential, which can be enforced only by establishing laboratories for the free examination of sputum. The placing of advanced cases in special hospitals or like suitable establishments. Such cases should not die in their homes, where they are dreadful distributors of the infection. Incipient cases should be admitted to sanatoria; the duration of treatment must be far longer than is at present the practice. Real cures are all too few. Dispensaries or care stations for the tuberculous should be established, in which the chief object should be the furnishing of food and assistance—not medicine. The people should be instructed and kept alive to the dangers of the disease.

Dr. Austin Flint has received a loving cup from the Cornell medicos of the class of 1909. Dr. Flint has been a professor of physiology since 1861, so that at his retirement, which was the occasion of this presentation, he was the oldest medical instructor in the county; and we believe those whom he taught will subscribe to the opinion that there never was a better. His students learned physiology, at least. We might here, for the benefit of any brother in danger of falling by the wayside, relate the story that as a medical student Dr. Flint "flunked" in physiology, which circumstance so vexed him that he declared he would produce the best book on physiology extant. And it certainly was the best at the time of its publication.

Those who desire abortions to be done by reputable physicians can best be disposed of after the method of the late Dr. G. A. Peters. A wealthy patient, laboring under the delusion that the family doctor should do anything he would be asked to do, called to make arrangements for this operation upon his wife. Dr. Peters seemed to comply, but as the man was about to leave he said: "Of course you know I cannot do a thing of this kind for my ordinary charges. The price will be very high." "Oh, certainly, I expect to pay you very handsomely." "Well," rejoined Dr. Peters, "it is always wise to arrange such matters beforehand. My fee for the operation will be five million dollars." Thus was the incident abruptly terminated.

The hand that rocks the cradle is no longer "the hand that rules the world." The science which is up to date, declares *Outing*, teaches that the hand which rocks the cradle is the hand which spoils the world. It is abominable, the habit which science has, of upsetting cherished notions. "Babies shouldn't be rocked." By this dictum, however, the mother is emancipated from a thraldom which frequently wrecks her nervous system and brings her to a premature old age; and the peevish whining baby is transformed "into a little creature all smiles and sunshine. Out of the baby it forms a child all sweetness and charm, in the child it inculcates habits of self-reliance that will stand him in good stead when he grows up to encounter the battle of life." There is much more to this effect, for which we have not space; who would have thought so important results could follow from just not rocking?

Mary Putnam Jacobi, who died recently, was a daughter of the founder of the publishing house of the Putnams. She early became ambitious to study medicine, a most heroic position to take at the time of her admission to the Woman's Medical College of Philadelphia, in 1861. Later she entered the Ecole de Medecine in Paris, being the first woman ever admitted to this institution. She was also the first woman member of the New York Academy of Medicine. In 1873 she assumed the illustrious name of Jacobi and became the co-worker of that great physician. All her life she was a steadfast champion of her sex. She founded the Association for the Advancement of the Medical Education of Women. In 1894 she made a memorable speech in Albany in behalf of a woman's suffrage amendment to the State constitution.

MISCELLANY

The meat imported from the United States and Argentine is to be preferred, declares *The Lancet* (London), to the home product.

There are 50,000 blind in the United States. Dr. Park Lewis declares that two-fifths of these cases might have been avoided had proper prophylaxis or curative remedies been applied.

Quadruplets were recently born to a Hungarian farmer, who had already forty-four children. He has no more room in his house, and is at a loss what to do. It is suggested that he write to President Roosevelt about it.

The medical faculty in Paris recently engaged to publish a Universal Lexicon of Pharmacology in nine living languages; at the earnest recommendation of a number of savants it was decided to add Esperanto as a tenth language.

The instinct for bargains which characterizes the most charming of sexes was shown by a young woman of Long Island, who collected $200 for a broken rib, half an hour after her adventure with an automobile—just $200 more than an historic male victim received in a case of total loss.

An association has been formed, states an exchange, for the purpose of supplying, under certain conditions, spectacles to children in London elementary schools. We are glad to know there will be "certain conditions" and that the distribution will not be entirely indiscriminate.

English patent medicines, states *The Hospital,* are applied to the alleged cure of such diseases as consumption, cancer, epilepsy and paralysis. There are at present some 40,000 makers or venders of patent medicines in Great Britain; and these products are computed to supply to the state a revenue of £331,000.

Arsenic iodide is indicated in the scrofula and the scrofulo-tuberculosis of children, in whom the hypertrophied glandular apparatus is in a condition of functional hyperactivity, while nutritional disturbances are concomitant. From 10 to 20 drops of a one per cent. solution should be given morning and evening.

Brain fever, declares *Punch,* is "a complaint unknown to your doctor or mine, but the usual accompaniment of domestic trouble in the mansions of the great, which will invariably baffle the skill of the ordinary practitioner. But a medical baronet, arriving by special train, can cure it by coughing dryly and endorsing the treatment prescribed by local talent."

Other Times, Other Manners.—The *London Times* recalls that in its issue of May, 1806, a decently dressed woman "was last night brought out into Smithfield for sale, but the brutal conduct of the bidders induced the man who was, or pretended to be, her husband, to refuse to sell her; on which a scene of riot and confusion highly disgraceful to our police took place."

Belladonna Poisoning.—Dorland reports three cases from the wearing of plasters (*Am. Jour. Med. Sc.,* April, '06). Belladonna plasters are generally applied by patients in their own initiative; so that serious symptoms may develop before they consult physicians. And these symptoms may mystify the latter if no mention is made of the use of the plaster. Fortunately atropin is rapidly eliminated after its removal.

The sting of bees as a cure for rheumatism was tried by a Philadelphian who bared his back and permitted one hundred bees to sting him. A chronic sufferer from this disease, he was several years ago bitten by these insects and discovered that the next day his rheumatism was better. A counter-irritant, such as the Paquelin cautery, might have served equally well; and the possible danger of infection from the bites of these insects would not have been incurred.

Outdoor sleeping is not unknown in London. A writer narrates having encountered a baby, who was set to sleep in a Chelsea garden during the hot weather. When the temperature dropped the careful parents brought the baby into the house at night; but it was restless and could not sleep. And now throughout the winter the child has slept peacefully in the garden, well wrapped up and with a tarpaulin guarding it from snow and rain. But it is a fine and healthy child and a compliment to the fresh air that London can provide at night.

A Vain Thirst for Gore.—A more or less notorious gentleman named de Castellane recently became vexed over derogatory observations made by another named Regnier. These observations were, in the language of the duello, insults which could be wiped out only in blood. The pair chancing to meet in a public corridor, Castellane declared: "I do not wish to make a scene here. So please consider your face slapped." Regnier, something of a humorist, upon this sent a note to Castellane inviting him to consider himself dead. The gore is yet to be spilled.

Prof. Koch, who has gone to equatorial Africa in order to continue the study of tropical diseases, has informed the Berlin Medical Society that he became so interested in his researches, especially in connection with the sleeping sickness, that he will not return to Germany for two years. He has therefore resigned the presidency of the society. In the last twenty years this great man has visited India, Egypt and the south of France in order to study cholera; South Africa to study the cattle plague; India to investigate the bubonic plague; and East Africa, the Dutch Indies, New Guinea, Italy and Istria to study malaria.

Bovine tuberculosis is very prevalent in Italy because of unsanitary stabling. A company has been established for insuring butchers against loss through condemnation of beef by the sanitary officials. To this company butchers pay a premium for each head of cattle slaughtered or for carcasses brought for inspection to the municipal abattoirs. If the meat is condemned the company reimburses the dealer and retains the carcass to be sold for food, after being sterilized, if only partially infected; or to be used for industrial purposes if found unfit for human food.

The prize ring has been graced by the presence in it of a student of the Yale Medical School; his opponent was the champion of Connecticut, who put him to sleep. Nevertheless we have no occasion to be distressed or mortified, for our embryo colleague "was strong, husky, fast and had a healthy wallop." The *Sun,* which gives but does not vouch for this story, declares that "these are just the qualities required by a physician in actve practice; even the 'healthy wallop' may be serviceable in the alcoholic ward at times." And they might prove useful, too, whenever an obnoxious reporter has to be disposed of.

SHALL SOCIAL EVIL INFECTIONS BE LEGALLY REPRESSED?

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

WE are not to-day and here to formulate statutes for the sanitary control and repression of social evil infections. To do that great service to humanity will require the skilled legal equipment of a broad judicial type of mind. Nevertheless, we are now on the campus of forefender thought, to present and discuss the absolute propriety and humane necessity of procuring a legalized right to defend the sons, the daughters, the wives and unborn children of our American families from the broadcast scourge of venereal contaminations that lasso human vitality aggressively and subtly through the sneaking byways of perverted blood, and of the tuberculoses, to the clammy drag-net of death.

The plan of venereal prevention by didactic exhortation or "moral education" which has been in vogue for a century of years, has tested its flacid régime of failure as a suppressor of venereal rot where it really exists. Even with trained minds and learned heads, society as constantly falls before the knees of the scarlet woman when the insistent tease of the sexual appetite will not forget its crave for an appeasing offering, with even avenging sacrifice, that shall be met at the altar of human passion.

We are not making or remaking the world as it exists. The forces underlying humanity are deeper and stronger than our availability to change them. While we have been sitting and drowsing around all these years, dreaming a palavered sentiment against legal interference with the squandered disorders of prostitution, venereal contagion has run a riot of insubordination till society is relatively garroted, from high to low, with the insidious results of impure sexual contact. How many men do we know who for all their lives have been absolutely free from a venereal blood contamination? How many women have we listened to who have not endured some form of sexual disorder that involved urethra, or vagina, or uterus, or ovaries, or yet adjunct physical equipment? Education? Does education annul sexual passion? Does it not intensify sensitiveness of desire? Does it not whet the appetite to know more, experience variety, tamper with the romance of extended risks? A very intelligent young musician of my acquaintance, a bunch of years ago, who was then "at home" with the handsome mistress of a local resort, told me that I would be simply stunned if he would then reveal to me the names of the professors of the faculty of a prominent educational institution who habitually frequented this house on intimate terms when there were choice girls there to entertain them! To my own knowledge, three if not four of those professors have since become tenants of their cold, silent abodes—and not because of old age! By their superior learning, they may have been capable of discerning between the diseased and the non-diseased woman. Whether they met their Waterloo of vitality by sexual venture or not will never be confessed. But while one learned in the sciences discerns the danger salient, the scores of others rush blindly to the bivouac of inoculation. It is for guardianship of impetuous swimmers beyond the foamy surf of the beach that vigilant life guards are needed along the sober shores of human reckoning. Too much courtesy of deference to venture is entertained in regard to the exemption of prostitution from official supervision. If we ever advance the sanitary hygiene of the house of promiscuous accommodation, legal control will supercede the hazardous complaisance of mere trust to chance.

It is the medical profession that most needs to be awakened from its dope of timid deference—to what? Has there been previous expression on the importance of sanitarily regulating the system of prostitution? Allow a few references. I will not glance farther back than to the great paper by Prof. Samuel D. Gross before the American Medical Association, if I mistake not, who in 1874 affirmed that "inasmuch as no preventive measures hitherto devised are at all trustworthy, and, inasmuch as the greatest risks of infection occur at houses of ill-fame, the only way by which these risks can be reduced to their greatest minimum, is by the legal regulation of prostitution, a remedy that could not fail to be productive of vast good in promoting the national health."

As was anticipated by Professor Gross, his outspoken appeal was made the text of opposition. The London *Shield*, published by the National Association for the Repeal of the Cantagious Diseases Acts, also *The Alpha*, published by The Moral Education Society, Washington, D. C., especially used their pages against the views of Gross, but with more hysteria than logical sense.

Dr. J. Marion Sims, President American Medical Association, in his address to the association in 1875 earnestly proposed that health boards be established in towns and cities; these boards to be empowered to exercise sanitary control over all contagious, communicable diseases, including syphilis. Dr. Sims also was deemed worthy of criticism by the Rev. J. P. Gledstone, in the London *Shield*. Rev. Gledstone subsequently visited this country as a delegate from the British Continental and General Federation for the Abolition of Government Regulations of Prostitution to assist in organizing branch societies in the United States. This "International Association" expended during the first year of its operations upward of a thousand pounds, in publishing periodicals and pamphlets, sending delegates to various parts of the world, and establishing branch associations. Mrs. Josephine E. Butler, of Liverpool, was the central moving spirit of this international crusade of fanatic opposition to government repression of the most general and most tenacious contagion known to the world, and that a preventable contagion! It cannot be supposed that Rev. Gledstone and the battalion of ambitious women who marched with him had ever taken notes along the actual lines of life that would afford them practical knowledge of the repulsive and insidious diseases that result from prostitution. A Spartan band of sainted women and ministers are exactly adapted to the elaboration of sentimental quibbles over great medical problems of which they know practically nothing. Here is Rev. Gledstone's substitute for legal restraint, as published in a letter by him dated January 21, 1877: "Looking at the whole question of prostitution, I am satisfied that moral and voluntary agencies are the greatest for bringing about a change. Among moral agencies, I set first the inculcation of purity by fathers and mothers; then by teachers, clergymen, etc.; the adoption of more kindly, wiser, and more loving agencies for the rescue of the fallen. I should like to see some homes of an entirely self-supporting kind. Then

I would like some doctors to begin and extend their teaching. I should like them to require or recommend continence in their books and advice. The world's experience is not favorable for making hard laws for prostitutes. I do not think we do much, if any, good by shutting up brothels. The house is shut up and the women are turned out; but the women are not changed in character; neither are they hindered from finding for themselves a home in some other place; while they are in the body they must live somewhere. The only sensible plan, as a legal plan, seems to be to close the house where they live, as a brothel; in fact, take possession of it, and allow the women to remain in it until they could find employment, or enter rescue homes, or return to their friends, in the meantime allowing the landlord no rent."

And there the Rev. Gledstone left us. So far as our American cities are concerned, he and Mrs. Butler won their useless campaign. Their plans have been tested for thirty years longer, nothing practical has been accomplished in the way of reducing the number of women engaged in prostitution, and, meanwhile, the spread of venereal infections has been tremendously increased among undefended population. As to some of his major points, the moral inculcation duty has had very considerate vogue and should never fall away from its field of service. But while one has been saved by it, a hundred have entered into the scorched paths of sin and a thousand have contracted infection. There has been no arm with which to reach and reduce the physical contaminations interchangeably spread from the fast-house. To sample by Philadelphia, loving rescue agencies have been and are in constant activity. I would like to see the present Mrs. Russell Sage apply some of her millions toward founding the Rev. Gledstone's "self-supporting homes" for the voluntary tenantry of fallen women. He makes no reckoning with their propensities, fondness for gayety, penchant for recklessness, aversion to manual toil, hence how would he succeed in detaining these thousands of impulsive girls in voluntary servitude or work in these "self-supporting homes"? Nine-tenths of them would "fly the coop" in less than a fortnight—unless too much broken in health to do otherwise. The rescue homes in Philadelphia are resorted to by a very minimum proportion of girls and women in fast life—and it is the testimony of matrons that the women who apply are in impaired health and too run down to continue their evil vocation. After the temoprary monotony of the home, many escape to return to their former haunts until claimed by the shelter of the city hospital. Again, the rescue homes will not include with their families such girls and women as, on examination, are found to have "the venereal disease." Where then are the arrogant opponents of legal control to win out any considerable good for the fast woman and for society at large? Suppose the plan be tried of closing the houses of prostitution "and the women allowed to remain until they could obtain employment." How many weeks or months would these thousands of women need to be furnished with the reasonable necessaries of life while endeavoring to find employment that would afford them decent livelihood? Or, apply the problem to the city of Paris, where a celebrated physician and careful reckoner estimated that out of three thousand women who were plying the most debasing and deadly of trades, only thirty-five could in any other way earn a living at all! Hence, again, how about robbing landlords of their rent because their houses shelter these degenerates who must live somewhere or be killed!

The most violent objectors to legal sanitary surveillance of girls and women in miscellaneous life of brothels have been among those who ran the late rumpus of exalted views in regard to "women's rights." In the necessary and repeated medical examinations of the erring women that the law would impose, and the resulting purification from dangerous disease, these objectors imagined they saw a hideous bugbear of degrading oppression. Such doctrinaires evade the fact that the public prostitute has reached the depth of her moral and physical degradation when she offers herself as a human medium of sexual merchandise to whoever will pay the price; that from the hour when she has contracted disease she becomes a continuous source of disease to others, and the medical inspection that leads to her cure offers alike to humanity and herself a blessing without degradation; that daily large numbers of good and virtuous women, single and married, cheerfully submit their cases to their physicians for speculum examinations, and thereby experience no moral humiliation in employing such rational means for the relief of their complaints as may be available. These fastidious apostles of woman's sanctity of physical rights are not aware that the female habitues of the brothel propose that the introitus of their sexual organism shall serve as the open door to trade profits, and have passed the stage of sensitiveness to medical investigation. About thirty years ago I was invited to attend a clinic in the women's ward for specific diseases in the Philadelphia hospital. It proved to be not a public clinic—myself being the only spectator present to view at close range the speculum examinations of the score of cases under treatment that day. One by one these women walked in after each other with the air of nonchalance, placed themselves upon the examing table, were prepared and the speculum introduced by the female attendant, received the treatments applied by the physician, and retired to give place for "the next" without a single flush of embarrassment. I thought the female who had aided the doctor was a professional assistant. What then was my surprise when the nineteenth case, instead of retiring, stood to one side and the assistant herself mounted the table to be attended to like as had all the rest! If a sensible woman has disease of private nature, she wisely prefers rational treatment of the same, rather than wasting time in mincing fudge over a quibble of "propriety." The fastidious objectors to legal control seem to forget that a majority of women who lead abandoned lives are ignorant, profane, intemperate, shameless, heedless as pedlers of infection. Matrons and lady managers of Magdalen Homes have told me that a majority of those who apply at the homes cannot read or write, are addicted to strong drink, are broken in health, and must, therefore, choose between entering a Home or the almshouse.

Our esthetic objectors should also be reminded that after affording the woman engaged in prostitution unrestrained liberty to spread contagion as long as she is physically able to do so, and through declining health she is compelled to desist and go to some hospital, the first step toward her relief is the identical medical investigation of her condition so inconsiderately denounced as personal indignity. When found infected,

she is detained in the syphilitic wards of the hospital until she is relieved or dies. If she drift into the almshouse hospital—that great municipal seine of human wretchedness—there the same course of sanitary inspection must be pursued. Yet again, to show squeamish objectors with what a monstrous evil society is confronted, let it be borne in mind that if the fallen woman apply for admission to one of the charitable Mission Homes, her case must yet be subjected to the same medical examination about which the social purity folks primed their howl for repeal of contagious disease acts. If there is room for her, and if found free from specific contagion, the erring woman is permitted to remain in the Home; but if she be infected, she must first be sent to the almshouse to be treated before she can become an inmate of the home. In all candor we are entitled to question on which side of the dilemma is the erring woman made the recipient of the greater consideration? Shall she be brought early under the discipline of sanitary control, and thus promote her own and the national health? Or shall we protect neither until the woman is physically disabled to spread her contagion, but afterward place her under medical surveillance? Cast up the sum of profits, and make the division. Her rights to exemption from legal exactions have been strenuously declaimed by the timid reformers who know as much about actual hygiene as a song-bird knows about the malaria of a morass. "Man-Afraid-of-His Face" should be the label on these talkers. Do not the hospital, almshouse, Magdalen Home exist and operate under Legislative Acts? Their regulations are enforced by authority of law. The woman who comes under their protection or jurisdiction does so as a subject of law—as much so as she would by the Statute of Registration contemplated by an Act for Legal Regulation of Prostitution. As it is, does it not turn out that legal or compulsory inspection obtains in every institution where fast women may abide or be served outside of the brothel or house of ill-fame of whatever grade? It would seem that fastidious talkers and writers who can estimate the picture on one side of the problem only, lack a substantial sense—"the horse sense"—of the social and national sanitary interests. Standing off under a cloak of sentimental excuses will never arrest contagion, never relieve the world of gonorrheal catarrhs and venereal sores, its tuberculoses and cancers, all of which are terribly on the increase.

Special deference is contemplated by our timid profession in regard to what fanatics have termed "legal recognition of prostitution" embraced by the idea of "legal regulation of prostitution." But since, like the evil of the sale of alcoholic drinks and many other evils, the evil of prostitution always will exist in some form, is it not common sense that the law should take cognizance of the fact, and interpose such regulations and restraints as shall best subserve the public welfare? The fact that the laws recognize the existence of any evil that affects the public welfare, and aims in letter and spirit to control that evil in some rational way, does not thereby make said laws criminal participants as the Butler-Gledstone crusaders labored to argue. Like prostitution, drunkenness is a perpetual evil; there always are men and women who, from some natural cause, will resort to intoxicants. Mere prohibition has never suppressed indulgence in spiritous drinks. How much practical sense would strenuous prohibitionists represent who made public outcry that any law which would authorize registration, a license tax, and systematic regulation of saloon business in community thereby became *particeps criminis* with the evil of liquor dealing? Law must recognize the certainty that the mischiefs which it cannot obliterate, it must in reason regulate for the welfare of society. Without law there is neither offence nor judgment. St. Paul says: "Moreover, the law entered that the offence might abound; . . . what shall we say then? Is the law sin? God forbid. Nay, I had not known sin, but by the law." Law will not exterminate the social evil; but by the regulations of law, the sin of contamination may be put into most commendable subjection. Granting, as we sadly do, that many unfortunate women lead lives of shame in consequence of harsh necessity or cruel betrayal, it should not be forgotten that when their backs are turned upon the good and worthy of their past, and they take refuge with the evil directly, they are walking into serious danger, and the remedy should be applied right where we find them, if we apply it at all. They will not first come to us; but we can go to them. Shall we not even say to them that though they have suffered betrayal and been abandoned, yet the law will mercifully follow them with the protection of her sanitary provisions, and extend to them such immunities from suffering as it is in her power to secure? Inasmuch as this article is mainly a review of the attitude of regulation where suppression can be absolutely only spasmodic, and is altogether an impracticable proposition because of the unquenchable impulses of human nature, I shall not quote latter day expression of recoiling sentiment from the scare and awe of the late anti-legislation crusade. We should depend on the riper judgment of men like the elder Gross and Sims, who were fully qualified to apprehend the problem of national health and welfare. But that it may awhile survive the waves of forgetfulness, we repeat from an editorial in the *Medical and Surgical Reporter* for July 31, 1897, anent venereal disease: "The *Reporter* does assert that the hygienist must regard the control of venereal disease precisely as he would that of any other communicable malady. That kind of morality which keeps its head erect by virtue of a raw-starched shirt bosom and stand-up collar habitually asseverates that it is immoral to deprive vice of its possible dangers. Without discussing this dogma, the *Reporter* does not hesitate to assert that the duty of the physician is to *cure, relieve and prevent* disease without reference to ulterior considerations. The physician must be actuated solely by the intent to save life or to cure disease. Physicians are constantly laboring to save or prolong lives which, so far as human wisdom can determine, are detrimental to society as well as burdens on those more immediately connected. The logic which forbids the physician hygienist to attempt the prevention of danger arising from indulgence in lust, is incomplete until it also concludes that the physician therapeutist must not cure the consequent diseased conditions. Aside from the duty peculiar to physicians, are reasons which fully justify prophylactic measures against venereal disease. The act of Congress which determines exposure to venereal infection is immoral, is so only when potential for evil in the social economy. It is the physical expression of a natural instinct, an appetite as normal as the craving for food or water, for oxygen or for exercise.

"Nevertheless, social ethics can admit no excuse for unrestrained response to the demands of this appetite, because as soon as we conceive man a morally responsible being with environments which bring him in contact with more than one of the opposite sex, so soon does the necessity for restriction become evident for the preservation, indeed, for the very existence of the social structure. In regard to mitigating the consequences of incontinence, two postulates are commonly made: First, sexual transgression is inspired more often by relative coincidence than by moral obliquity. Second, severest ultimate consequences of wrong-doing are visited upon the innocent and even the unborn. The strongest plea for bringing venereal disease within the province of preventive medicine is because of the ultimate disastrous results to the innocent. Gynecologists estimate that nine-tenths of pelvic inflammatory diseases in women, excluding cases due directly to accidents incident to parturition, result from gonorrheal infection. If there be any question as to the righteousness of seeking to spare man or woman the possible consequences of yielding to the *promptings of natural instinct*, there can be none whatsoever to regarding infected parties impersonally as direct agents in transmitting loathsome disease to others, especially through legalized relations to unsuspecting virtue and potential posterity. Every means to prevent such spread of contagion should be exercised. For the sake of the race unborn, if for no other reason, venereal disease should be exterminated if any efforts of the profession or public can accomplish the task. The social evil has prevailed since the fall of humanity and has grown apace with the increase of mankind. It has disintegrated kingdoms, it has submerged empires, and its flood tide marks the ruin of nations. Society has as yet built no dams efficient to restrain it. But incredible progress will be made when venereal disease shall be controlled through effective measures devised by science, enabled by wise legislation and enforced by public opinion. This is possible." The foregoing editorial expression is a logical and powerful article by Dr. H. H. Kynett when conducting the *Medical and Surgical Reporter* in 1897. I am glad to see it reproduced for enlightenment of the profession and the world.

Agitation of the subject of legislation roused an interest in the minds of women for the welfare of the fallen never before experienced. Some good always results from the study of great subjects—and an impromptu prejudice often reverses its position on more mature examination. We always welcome every moral agency set in operation to help reclaim the erring. Educating both sexes in regard to the legitimate functions of their physical natures is wholly commendable. But while that deters one from unwise venture, it stimulates another to enlarge by experience what has been learned by precept. Familiarity of knowledge does not keep the sexes apart. When the ordinary moral agencies fail, legal means should interpose between safety and danger, and thus legal means may become moral agencies also. Refuges in America prove too limited and too insufficient. To reach the need of the age something more direct and arrestive is necessary. Until recently the medical profession has been inexcusably, feebly reticent in regard to any positive remedy. Doctors! While doctors have maintained veiled faces in avoidance of broaching a disagreeable subject to ears polite, women writers and speakers have not shrunk from freely handling this subject with their pens and upon the platform. They have unblushingly labored with polished skill to capture the adherence of church ministers who never analyze a problem of physical hygiene or social degeneracy. Women hobbyists never crow over men so loftily as when they sway men's judgment with a drawn bow of argument and throw the arrow of coquetting smile over their fan of opinion. Where are the doctors? Who are the men that quail before a frown of sentimental rebuff, shudder in face of a shrunken fee! Millions sick with subtle corrosions of venereal disease! Nobody brave enough to hold up the healing signal to bitten humanity! Are our thousands of medical practitioners in America really doctors, while failing the rescue of the race here from the venereal corruption that is increasedly spread abroad through prostitution, largely reinforced by immigrants from stolid foreign countries? Can we not begin to wake up to a higher sense of professional opportunity and obligation? If we entertain broad sanitary convictions regarding the social evil, but fear to declare them, then what great cause has anything helpful to expect from our mission in the world? The evil is monstrous. Our responsibilities are proportionate to this evil from which we cannot hide. The ignorant and innocent people need more and better knowledge. Help them to it. Public sentiment, awry with qualms, deserves from us a more elevated enlightenment and relief. Are we here merely to administer a pill or a tablet and take a fee? Even a quack can perform that primitive stunt in common medicine. We are entitled to higher privileges in the service of suffering population.

The eminent Prof. Gross, clearly comprehending our national dangers, fearlessly placed himself at the front of sanitary progress for the betterment of the people. The eminent Sims hastened to join Gross in resisting the ravages of venereal contagion. Both veterans have since crossed to the invisible beyond. Are there not others capable and willing to champion a crusade for the rescue of the innocent women and unborn children of America from a preventable physical and moral scourge? The heart to heart question for courageous medical minds is not "What will others do?" but "What will I do?" for so worthy a cause? Six-tenths of those who suffer from results of gonorrhea and of syphilis grope in the fog of ignorance in regard to the true cause of their nerve degeneracy, their mental tribulation and physical discomforts. And are we to stoically stand and look on while our patients are doomed to the knife and extortionate fee of the specialist operator—live or die? Objects of tender love? Subjects of winsome regard and anxiety? The plan proposed by the eminent Gross embraced a number of the features of the St. Louis ordinance. It outlined a bill uncomplicated and direct; enforced by few officers; prohibited city councils and police from serving on its board of managers; examining physicians to be moral and educated men, appointed by the Board of Public Charities; officers and physicians to be scrupulously conscientious in the discharge of duties; inspections to be regularly made; all women found unclean to be placed in quarantine, or under proper restraint; the law to be made to apply to males as well as females; sailors arriving in port, and soldiers stationed in barracks, to be inspected, etc. Dr. Sims proposed that syphilis be classed with smallpox and other contagions, and with them

be brought under the control of boards of health in towns and cities; these boards to have "the power to search out the abode of syphilis, and to send its victims to hospitals for treatment." He opposed "class legislation" and "legislation that looks to licensing" as measures that would not meet popular approval. The plan of Dr. Sims stopped a step too short.

It would be a great service could our boards of health successfully search out the abodes of syphilis; and suppress venereal contagion. But could said boards succeed without registration of those engaged in prostitution? Moreover, in the cases of persons who engage in the traffic of ill-fame as a means of money gain, would it be an outrage on proper society to assess the institution of social evil for the support and medical treatment of its infected women? Class legislation applies its control over the liquor trade, subjects pupils and teachers to physical examinations, why should the traffic of prostitution be exempt from expense and supervision? Most lines of decent business are taxed in conjunction with license. In prostitution a special class offer themselves as merchandise. The cans of the milk dealer must open for inspection at any moment. Perhaps thirty-one years ago the American Medical Association, at Louisville, was furnished the report of its committee on the subject of legislation against the extension of venereal disease. I will abridge said report for present day readers. "The committee appointed to suggest 'proper legislation to prevent the spread of syphilis' beg leave to report that, in their judgment, there is no possibility of stamping out syphilis until all the nations of the world are protected by proper legislative measures. Great difficulties, unfortunately, surround the execution of laws having for their end the prevention of syphilis. . . . We can therefore only hope to obtain the passage, at first, of enactments having in view the regulation of persons engaged in the military and naval service of the government, and also those ordinarily subject to the control and supervision of the police and municipal authorities of cities and large towns; though, in the end, we are convinced that the extension of this control and supervision to the whole civil population will be the inevitable legislation of all countries. Even partial legislation will do much good, for syphilis, however and whenever it originates, fixes itself in great populous centres, and has its habitat in the abodes of poverty, filth and vice, rising, in the end, from these conditions to the highest degree of social life, and contaminating whole communities in its march. A law similar in its purposes to the 'Contagious Disease Acts' of Great Britain, properly adapted to the peculiar temper and genius of our people, and drawn with special reference to the character of our State and national governments, is, we think, both feasible and practicable; and its passage can be secured, we feel convinced, if the medical men of the nation are invoked to use all their personal, social, and even political influence with the legislatures of the different States and the national government, the latter to reach naval and military stations. From report of select parliamentary committee we learn that the operation of said Contagious Disease Acts has been followed by the very best results. Not only has syphilis decreased, but prostitution has diminished, and its evils been much lessened, both in a moral and physical sense. Many women improved in health —large number restored to virtuous, useful life. In adapting the British law to this country, it might be greatly amplified, as it does not extend to jails, houses of correction, etc., nor does it include seamen and lewd women coming in vessels from foreign ports. One sailor may contaminate half a dozen women the few days he is in port, and these women may in turn inoculate hundreds of men. Lock hospitals are not provided for by the British law, and these are indispensable for the proper working out of any plan to prevent the spread of syphilis. They should be established in the cities and large towns that are made subject to the requirements of the law, and at the military and naval stations of the government. It has been suggested that a mere enlargement of the powers of the health boards of cities would be sufficient to secure the desired end of legal enactments. To constitute ground for State interference, it must be conceded that the evil is of such magnitude as to endanger the welfare of society at large, and that it cannot be reached by ordinary social and civil means. Can it be doubted, in the present state of our civilization, that syphilis is such an evil, and that, if its progress is not arrested, it will lead to the general decadence of the race. In conclusion, your committee recommend to the association that a committee be appointed to prepare proper bills to be submitted to the different legislative bodies of the country, and that the members of the profession be urged to use all their influence to secure their passage."

Since then thirty years have been lost by inaction through timidity, and the penalties of progressive infection have cut increasedly wide and heavy swaths through many of the uncounted sufferers to whom no preventive hand has extended itself. Besides the historic data that I have already reviewed, as a loyal disciple of the eminent Prof. Gross, whose memory he reveres, the present writer nearly thirty years ago in medical print asserted his adherence to the life-line of suppression of venereal infection, by going rather farther into the plan of prevention than had Prof. Gross. We learn as we proceed in thought. Since the reduction of the evils of prostitution are the legitimate objects of human charity, there is no reason why legislation should not include restrictions for the male as well as for the female. I pity the girl in evil life who becomes exposed to the filth of a gonorrhea or the infernal scorch of a syphilis from a rake of manhood because he has bought his privilege to her accommodation. It cannot be just to discriminate in the man's favor when we balance the merits of privilege. Admitting the fact that in many individuals of both sexes an imperious appetite for sexual commerce exists, that passion confers no right for either sex to infect others. Confronting the recklessness of human nature, there should exist the official right to inspect sailors before landing with their keen desires; and of soldiers, including officers, whenever the personal health of women they would seek would be involved and the public good thereafter be endangered by the omission of rigid inspection with power to promptly quarantine the diseased. These inspections for sanitary ends could be made by the ship surgeon and the regimental surgeon, respectively; or by quarantine physicians and medical officers of public health boards. Subjects of infection to be detained in quarantine attendance or in hospital until cured. From some army experience, the writer observed that officers were subjects of venereal diseases in ratio with private soldiers. Sexual passion is

no respector of military rank. Knowledge of sexual nature and function, especially the fearfulness of venereal diseases should constitute a requisite of the education of youths as human beings who must fill a personal niche in the world; but above all that should be suspended the royal rod of the law. There is law for everything else; why should erring sexuality be neglected? To reduce the temptation to prostitution and protect humanity from specific disorders, the world needs legal authority to apply interference directly to these evils. The enactment could be made like local option, to apply to certain counties or States. Health boards for each county could operate as subsidiary branches of a State board of health to include control of venereal contagion. Sex should not debar a properly qualified individual from serving on these boards. Thus let women of high moral standing increase their practical interest in fallen women along the lines of their own sex. In many places, an efficient woman physician assistant to the medical inspector might take charge of many examinations of females. Officers should be chosen to make correct registry, from time to time, of all houses of ill-fame, and their mistresses, and of all women engaged in prostitution within the limits of the jurisdiction of said officers. All persons keeping houses of ill-fame, houses for assignation accommodation, should be systematically taxed, as a condition of license, for the purpose of providing continuous revenue toward the maintenance of industrial homes and hospitals in the vicinity of their business. The industrial home and hospital should be a civil humane institution, embracing in its organization the combined advantages of the refuge, the home, the school of correction and industry, and the hospital. Such an institution could be made one of the noblest blessings of civil government. Appropriations should be made by each county for founding such invaluable institutions. Sanitary inspection of all girls and women following the vocation of the prostitute should be made at least once a week, and whenever any are found to be diseased, they should be required to report in person at once at the industrial home, where they would receive needed medical attention, would be cared for physically and morally, be engaged in some useful occupation under instructive direction, and to remain until cured of disease; if reformation be possible, where they should stay until reclaimed, and be either restored to friends or aided in gaining the opportunity of leading honorable lives. On due examination, each registered woman found free from infection should be furnished by the medical officer with a certificate of health with printed date stamped thereon, and accuate record of the same should be made for official reference. Any woman found plying the vocation of solicitation or promiscuous accommodation of males without such properly authenticated certificate, should be liable to immediate arrest for endangering the public health in violation of law. Each woman in fast life who holds a certificate of health to be required to surrender the same to the official at the time of her ensuing examination. The public health board should be fully empowered to ferret out concealed haunts of prostitution, where the business is secretly conducted with the aim of evading the controlling law, and contagion more certain to be spread among the male and female habitues of such places.

There is no room for the sizzle of sentiment in dealing with the condition of prostitution. Women who follow the business of ill-fame for the money they can realize from their patrons for transient accommodation, naturally become venturesome and indifferent to the protection of males from disease. Such women often ply their trade while more or less under the influence of intoxicants. Furthermore, disease in the male may be frequently so concealed that the woman, through lack of expert knowledge, would not detect her own danger, though earnestly desiring to do so. Therefore, to arrest the spread of venereal diseases, males should be held as responsible as are females. The legal enactments under consideration should provide that each and every youth and man who resorts to any house of ill-fame for the purpose of sexual intercourse, or who consort with any woman practicing promiscuous sexual relations, shall present and be required to present as testimonial of sanitary health, a properly authenticated certificate of freedom from specific disease—such certificate from the health board official, or from some other legally qualified physician of recognized standing, to be considered evidence of freedom from contagion not longer than ten days including its date; each medical officer to keep correct record of each examination for exactness of data. Any male or female found guilty of fabricating, or making use of a fraudulent health certificate, or otherwise evading the requirements of preventive legislation that apply to them, to be liable to arrest and penalty of fine for endangering the public health; all fines to be also appropriated toward support of the industrial home and hospital for women. If asked why I do not propose to tax the man who patronizes, besides the woman patronized, my reply is that expenses should be assessed on those who conduct the business for its money profits. Of course, the industrial homes and hospitals for the reduction of contagion would be in line with other institutions for the support of State appropriations and charitable bequests. While I favor extending to the erring defence against the infections of venereal poisons, it is not anticipated that the life of the fast woman shall be all smooth and gilded. If the business become too unprofitable for the woman to pursue it, she will be more willing to abandon it. The road of danger should be narrowed with restraints and obstacles. While receiving medical aid in the hospital department, these tenants of the industrial home might be taught to weave cheap and narrow fabrics, to make garments, to sew the uppers of shoes, to practice good housekeeping, in scores of ways learn how to lead useful and decent lives. The only effective way to reduce venereal contagion in the world about us is to arm the law with the right to reach straight to its centres and corral its hotbeds of vice, without squeamish fear or servile favor, when humanity at large is suffering day and night from its implacable but needless scourge. There is something that heroes are made of.

1726 North Twenty-second street.

Lumbago.—Farquhar (*Brit. Med. Jour.*, Mch. 3, '06) uses the Ointment of Tartrated Antimony (B. P.); it must be well rubbed in. Croton Oil Liniment used in the same way is helpful in cases of chronic sciatica. For the stiffness and gnawing pains characteristic of these affections remedies are often so disappointing that these suggestions of Farquhar should be adopted.

THE SEX CYCLE OF THE GERM PLASM.

Its Relation to Sex Determination.*

BY T. E. REED, M.D.

PART I.

PRIMITIVE man has been found to theorize in his fanciful way upon astronomical phenomena long before it occurred to him that there was any need for an explanation of some manifestations of even more intimate connection with himself; these are the expressions he constantly sees in himself and about him of the life force. However, as knowledge increased the external world was separated in the mind of man into two categories: the category of living matter and the category of matter which as far as could be seen had no innate power of reacting to its environment or of reproducing itself. We know that even in the mists of prehistoric times, or with the primitive peoples of any age this sharp distinction between the living and non-living, organic and inorganic matter has almost instinctively been drawn.

We do not wish to be here understood as holding that there is such a real distinction between these two phases of the material world. Some recent discoveries would seem to convey hints that this barrier through which a break has so long been sought, and sought in vain, may be broken down. We are considering now the more apparent distinctions between living and non-living matter. Of these the one which possesses the merit of being the most easily applied as a test, is the power possessed by all living organisms of reproducing themselves.

There are several ways by which this flow of reproduction is sustained as an unbroken and eternal stream. These we may refer to later, but at present it will suffice to call attention to the well-known fact that with all the higher forms of animal life this is without exception accomplished by means of sex differentiation.

We are now face to face with one of life's mysteries and consequently one of the most intricate problems of biology—this question of sex, its manifestations, its determination and its origin. Notwithstanding the now well-known fact that next to the motive of self-preservation the motive of self-perpetuation may be recognized as forming the principal basis of activity in all organisms, and even in man himself, sex manifestations were not for many centuries thought of as constituting any problem whatever. These phenomena were in fact like the regular succession of night and day, so obvious and so constant that they were taken for granted.

With the problem of the origin of sex, other than in the consideration of what it may have to teach us in respect to the determination of sex, we will not deal. It is intimately connected with the question of the origin of life itself, and probably will only be completely solved with the solution of that problem. Could we correctly define just where and why sex differentiation originated, the question as to what determines its manifestations would no doubt be no longer one to which an answer is wanting.

Elaborate investigation of the methods of reproduction in the primitive forms of life have been of use in clearing away many of the misconceptions which have surrounded this problem, but their value has been largely of a negative character—they have eliminated for us the non-essentials. Many of their results have been so remarkable, and at times such strong experimental evidence has been brought to the attention of the scientific world that the problem seemed to be near a solution. When the results which were secured from nutritional control in the *Daphnia* or the Lepidoptera were sought with the higher animals, or man himself, they have almost without exception been found wanting. All these theories and experiments have eliminated many factors of the equation. They have placed signboards across many blind passageways which were at one time thought to lead out of this labyrinth, warning us that here is no thoroughfare, or that here we cannot go far before we will find ourselves face to face with another barrier; or that if we follow this path we will only travel in a circle, and arrive again at our starting point.

This question, constituting one as it were, on the borderland between the known and the unknown, has been a fertile field for charlatanism. Where the light of the known blends with the darkness and mists of the unknown, there the ignorant, feeling much at home, pitch their tents. Yet, notwithstanding this, very many scientific men have not hesitated to approach the problem. Their efforts range from the expression of the merest opinion on the subject to the construction of the most elaborate hypotheses based upon patient experimentation. But the hypothesis has yet to be announced that will account for all of the observed facts, or accounting for the facts will yield any results when put into practice.

As a consequence of all this, what is, to-day, the attitude of the scientific world toward this question? Some hold that it is in all probability insoluble; others hold that we may in time discover the factor which determines the sex, but that any control of sex will no doubt be impossible. Beard thus indirectly expresses his opinion of all schemes for the control of the sex in offspring. He says: "Any interference with or alternation of the determination of sex is absolutely beyond our power. To hope ever to modify its manifestations would be not less futile and vain than to imagine it possible for man to breathe the breath of life into inanimate matter. For the workings of nature in sex merge into her revelations of life itself."* Others believe that we already know what determines sex and that we have now only to overcome the difficulties which present themselves when we attempt its control, while still others hold that the whole question is one that is yet to be answered. They do not deny the possibility of finding an answer, but they believe that as yet nothing is so positively known that we can afford to dogmatize. With this last view of the question we are inclined to agree. One thing is certain: no hypothesis has yet been advanced that will satisfactorily explain all of the observed facts. There are always residual phenomena that refuse to serve as links in the chain, seemingly so strong and well connected in parts. We will not in this paper enter into the history of these investigations, or theories. In many theses it is well treated as an introductory to the author's own views on the subject, and to these we refer any who may be interested in the history of the problem. The com-

* I wish to acknowledge an indebtedness to my son, Dr. Ralph Wallace Reed, of New York City, for valuable suggestions as to the manner of presentation of this paper, and also for considerable assistance rendered in the preparation of the Manuscript.—T. E. R.

* Zoologische Jahrbucher Anatomie und Ontogenie, Vol. 16, 1902.

pass within which we wish to keep this paper prevents us from following this method. However, when we are able to gather any lessons from the results of others we will not hesitate to do so. Investigators here need not suffer for want of a literature. Burdock has compiled a list of some one thousand works on the subject.

The reader who has followed us thus far if he had not already preconceived opinions on this matter has now, perhaps, from what we ourselves have said, acquired somewhat of a prejudice against considering seriously the claims of any one who may think he has solved the riddle or even has something new to say upon it after so many have occupied themselves with it without marked success. However, we will ask him, if this is the case, to suppress for the time being these very natural prejudices and follow us to the end of this paper. When this is done we feel that if assent is not given to the conclusions drawn from the facts which will be adduced, it will at least be admitted that the hypothesis advanced accounts for the facts as well as many others which have been promulgated within the last fifty years; and furthermore, as far as we are aware, the main details of the theory have never been anticipated.

Hipocrates was one of the first to express an opinion on the determination of sex. He was a physician and since his time it has been a problem that has appealed especially to this profession. It will here be considered largely from the standpoint of the physician.

Let us briefly consider some of the different theories which have been advanced: what may be said in their favor and what may be urged against them. Thus by a process of elimination we may narrow our inquiry down to comparatively restricted limits. While it would be interesting to do so we will not attempt here to consider the speculations on sex published in the middle ages, or during the periods of Greek and Roman speculative philosophy. Their ideas on this, like those they held on many other natural phenomena, were based on no scientific foundations and at the best were usually guesses—excellent guesses sometimes, but still after all only guesses.

First we have those who hold that the sex is a definite property of the ovum, that it is male or female from the very beginning of its existence, and that the whole function of the spermatozoa is one of fertilzation or supplying the proper stimulus to the ova. The part here played by the spermatozoön is thus a minor one even in the higher animals, and it is pointed out that in the lower forms of life fertilization often takes place without any fusion with the spermatozoön, thus proving that the conference of sex is not one of its functions at least. We would thus never be able to control the sex unless we could exercise a choice in the selection of a particular male or female ovum. Even supposing that we could in some manner devise a test for sex in the ova the fertilization of selected ova would present difficulties which, in the higher forms of life at least, would be impossible to overcome. Nevertheless the fact that this hypothesis offers us no hope for the control of sex is no ground for its rejection. There is something to be said in its favor. It is supported by good authority, by its accounting for parthenogenesis, and by the fact that sex is one of the earliest characteristics to be distinguished in the embryo.

To digress for the moment, let us sketch the different methods of reproduction. We are compelled in the beginning to recognize the fact that with many forms of animal and plant life there is no differentiation of sex whatever. In the protozoa we have reproduction by the simple act of fission or division. This is the manner of multiplication of all simple animal cells; it is, in short, either a direct cell division or karyokinesis. Then we have a budding or gemmation which is the common method of reproduction with the polps and in many infursorians. Next a very free bud formation, known as endogenous or spore formation as with the *arcella*. When we reach the metazoa we have a borderland process between sexual and asexual reproduction. Here the distinction between body cells and reproduction cells is more marked. Now the distinctive characteristic of sexual reproduction is the existence of two forms of cells; one form being fertilized by the other. The facts of sex evolution would thus seem to favor the above hypothesis. It should be remembered, however, that these dimorphic cells may be produced from male and female individuals as is the case with the higher forms, or they may as with some of the lower forms of life be produced within the same organ of the same individual *but at different times.* This point we will later consider in greater detail.

The ideas of Beard, who is probably the ablest of the upholders of the thesis that sex is a property of the female germ alone, may be thus summed up. He holds that the male element has not the slightest influence in determining the sex, it only exercising the function of fertilization or in other words orignating the amphimixis. He believes that sex is a function of the egg itself, and that with a given ovum there is nothing that can alter the sex that is predestined to arise from it. Sex therefore is not determined at the moment of fertilization but a long time prior to that. The doctrine that the sex of the embryo may be influenced through the mother after development has commenced, although never possessing much scientific standing, is entirely discredited by these investigations.* Before leaving this phase of the question it might be well to mention another point at issue. Some investigators have held that fertilization itself has something to do with sex, as it was at one time thought that fertilized eggs in the bee could only give rise to females. Beard denies this, however, and holds that both male and female can be produced parthenogenetically.

We believe with Beard that it can be shown that sex does not arise subsequently to impregnation, and this is practically the concensus of scientific opinion to-day, but we hold that the view which makes a definite sex distinctively a function of a particular ovum existing as such for an indefinite period prior to impregnation, is one that at the best rests upon a hypothetical basis. Even if the ovum be one which undergoes development without fertilization it cannot be shown that it, from its origin, must necessarily have been male or female, and that prior to the beginning of its development it could not have been as it were in states of equilibrium or fluctuation—its sex subject to determination by some slight subsequent influence. Or in instances where development depends on fertilization, since the sex cannot be known until after some degree of development has proceeded, how can the influence of the spermatozoa be ruled out?

* See Zoologische Jahrbucher, Anatomie und Ontogenie, Vol. 16, 1902.

But, it may be asked, is there any possibility that the sex of the ovum can be known prior to fertilization? We have been able to find no experimental evidence tending to show that it can. Minot* says in this connection, that there is no material basis of sexuality in the sense that there is any visible sex male or female substance (referring to the primitive cells) known to the biologist. He rather considers the male and female cells as essentially the same except that in the male cell there is an over development of the nucleus and in the female cell an over development of the protoplasm. The ova resembling old cells and the spermatozoa resembling young cells. He further remarks that we can ascertain the sex of a genoblast by observing its history and not by any direct test. It is probable, he says, that the male or female sexuality is an intracellular relation of parts, or some modification of the interplay of forces within the cells, and he believes that for the present this view must hold against the opposite one that there is a male matter and a female matter.

We will not consider in detail such theories as the influence of suggestion in determining sex, the time of day of conception, the time with reference to the menstrual month, the relative ardency of the parents, the ability of the more passionate parent to stamp the sex, the theory which holds that ova of one sex are produced one month and ova of the opposite sex the next, alternating, and thus maintaining an equilibrium between the sexes; or psychological theories which hold that a mother of strong character produces male offspring and vice versa. None of these ideas with the exception of the one which refers to the time of impregnation with respect to the menstrual flow have ever enjoyed much scientific standing. Some of them, as in the instance where sex is referred to the alternate monthly generation of male and female ova, may be readily disproved, hence they never obtain much vogue, while others, because the determining factor is conceived to be one which after all is relatively so indefinite, can never be disproved to their originator's satisfaction or proved to the satisfaction of any one else.

The possibility of modifying or developing characteristics by breeding has long been recognized by stockmen. Since the elaboration of the doctrine of evolution this method of improving a strain has been more carefully worked out and carried to extremes not before thought possible. This ability to secure desirable qualities in offspring by selection of parents possessing these qualities naturally led breeders to hope that they might in time be able to produce a desired sex in offspring by selecting the parents from strains in which the tendency to produce one sex or the other predominated. Copeman and Parsons attempted to systematize this method, but without apparent success.* Their failure might have been predicted. It was not recognized that sex differs very materially from other characteristics. Sex admits of but two variations, any other characteristic admits of variations which may be considered as almost infinite, and the very fact of breeding for a certain sex presupposes the admission as a factor in the problem, of the sex element opposite to the one desired in the offspring. This necessarily counts half, so we cannot hope for a preponderance of one or the other influence in the parents, or, the conditions being of course the same, in the grandparents, and so on back. Thus we see that as far as hereditary influences are concerned, by the very nature of things, there must be a tendency toward the maintenance of an equilibrium between the sexes.

* Human Embryology, 1902.

* For an account of their experiments see "Observations on the Sex in Mice," Copeman and Parsons, Proc. Royal Soc., Vol. 73, pp. 32-48.

PHASES OF CARDIAC DISEASE.

BY W. M. WORMLEY, M.D.

OPIUM is undoubtedly a tonic in cardiac debility. Take a weak heart after prolonged mental or physical strain or following exhausting disease, and opium is most excellent in its effects. It supports the heart in failing compensation, in irritable cases and in myocardial dilatation, in arteriosclerosis and chronic parenchymatous nephritis it is of value as pointed out by Musser. In hyper sensitive or hypochondrical patients the drug acts finely. Dyspnea is relieved by small doses of morphine, and rapid pulse is checked.

Special attention should be called to the influence of over-stimulation or over-exercise of the cardiac muscle; if any voluntary muscle or group of muscles be inordinately exercised, the muscles after attaining enormous size will show signs of wasting; this does not seem to be the case when all the muscles of the body are exercised, probably because no muscle can then be over-exercised. Voluntary muscles expend far more energy, which is primarily derived from the food and from the oxygen of the air, than they store up during the same time, so periods of rest must be alternated with periods of activity. The involuntary muscles, depending entirely upon involuntary nervous stimulus, also have their normal though brief periods of repose, which, in the natural condition of the heart, are adequate to allow time for necessary nutritive processes; if, however, the heart is beating rapidly permanently, or when in consequence of frequent attacks of palpitation, sufficient time is not given during diastole, the time of rest for the cardiac muscle, for nutritive processes, degenerative changes must follow. As the voluntary muscles demand their normal stimulus, which cannot be withheld, so the involuntary muscles demand neither too much nor too little stimulation. Instances of pathological degeneration of this kind are found in the parenchymatous degeneration attending prolonged fevers and in certain fatty changes. Under conditions of marked hypertrophy the disproportion between the work of nutrition and the resting periods must be even greater, and a nutritive breakdown is to be expected. The walls of the heart, when the seat of advanced changes, at times yield under normal blood-pressure, and when the degenerative process affecting the heart-muscle is less extensive, moderate hypertrophy may be developed in consequence of the occurrence of abnormal endocardial pressure. Here secondary dilatation occurs early, as the result of increased nutritional disturbances due to abnormal stimulation of the cardiac muscle. The history and progress of the following case illustrate in a striking manner the early development of dilatation of the heart under conditions of abnormal stimulation of its walls: An Irish laborer, 70 years old, had the diseases peculiar

to childhood, but never had rheumatism; he always worked hard, and was exposed to the weather a great deal; used considerable tobacco, and has been more or less of a drinker, but with no specific history. He has had a tremor of the hands for several years. One year ago he was in the hospital for two weeks with great shortness of breath and considerable cough; after discharge he developed œdema of the lower extremeties, which he has had several times since. He had a return of the dyspnœa, cough, palpitation, and œdema, with cyanosis; the heart's action at that time was weak and irregular, but no organic murmur could be detected, with all the physical signs of a dilated right heart and emphysema. Another attack followed, with great œdema of the legs; breathing being difficult and irregular. No murmur was present in the heart, but it was very weak and irregular in action, with cough at that time. About three weeks later forty ounces of a fibro-serous fluid were taken from the right pleural cavity. He was given iodides, and the effusion disappeared in three weeks' time.

At the examination two months later patient had during the previous night an attack of asthma, relieved by Hoffman's anodyne and a mustard plaster applied over the cardiac region; in the morning he was taken with a seizure of apoplexy excepting signs of paralysis; the face was deeply cyanosed, the veins of the head congested, and the pupils dilated. The pulse was full and tension very high, with stertorous breathing, involuntary emission of urine, and unconsciousness for about twenty minutes. There were general convulsions having no definite mode of beginning. The heart seemed very weak toward the last of this attack. At four in the afternoon there was another, though less severe, attack exactly similar to the first one. In the evening about twelve ounces of blood were removed from the median basilic vein of the right arm, after which there was marked improvement in the mental and physical condition of the patient.

Our inspection now shows a barrel-shaped chest, moving as a whole in inspiration. When coughing, the apices of the lungs protrude prominently in the supra-clavicular spaces, and diffuse pulsation is seen in the epigastrium. The apex-beat is diffuse, wavy, and seen most distinctly at a point a little outside of the nipple-line in the sixth interspace. Percussion showed hyper-resonance over the sternum and over the entire right lung, while the pulmonary note at the apex was decidedly lower-pitched. The right base shows dulness, probably due to thickened pleura; the area of cardiac dulness is extended toward the right. Ausculation posteriorly over the right lung shows prolonged feeble expiration, while the left lung posteriorly shows dulness with most rales, indicating hypostatic congestion; inferiorly the respiratory murmur is feeble and expiration prolonged. The lungs are emphysematous, and the heart's action is irregular, intermittent, and difficult to auscult. There seems to be a soft, mitral, systolic murmur; no murmur is heard over the base of the heart or in the carotids. The right heart is dilated markedly. The liver appears to be normal in size, as does also the spleen. His mind is not quite clear; the pulse is weak, irregular, and intermittent; the countenance, lips and tongue are pale; his hair is quite gray, and there is slight though distinct arcus senilis, and his arteries feel hard. The temperature is normal, at times even subnormal. There is slight dyspœna. He had on three different occasions Cheyne-Stokes breathing, lasting each time several hours; on inspection, the area of the heart's impulse is seen to be much widened, feeble, and distinctly undulatory, with slight epigastric pulsation. On palpation, no impulse is detectable, except over the upper portion of the epigastric region; when the impulse can be seen and not felt, it is good evidence of the existence of dilatation. In other cardiac conditions the impulse frequently cannot be seen, but may be distinctly discernible on palpation. The area of percussion dulness in this case corresponds to the area of visible impulse an important sign is dilation. Percussion dulness on the right side extends nearly an inch beyond the normal boundary line; above and on the left side the line of dulness falls just a little within the normal boundary, due to the overlapping of the emphysematous; auscultation shows a very feeble, short, irregular, distant first sound, with slightly increased valvular and greatly diminished muscular quality; the second sound is also feebly marked. A faint, soft, systolic murmur is heard near the apex, but not elsewhere, due to muscular incompetence. The diagnosis in these cases is not always easy, especially when, as in this instance, the signs and symptoms of cardiac dilatation are interwoven with those of fatty degeneration. Chronic alcoholism, the presence of atheromatous changes, the persistently weak and irregular action of the heart, the arcus senilis, and later the Cheyne-Stokes respiration and pseudo-apoplectic attacks, point to the probable existence of fatty degeneration. Evidences of dilatation of the heart early in the history of the case are not wanting, as shown by the occurrence of marked œdema, great dyspnœa, cardiac palpitation, and the physical signs of the causal condition—namely, emphysema. Lastly, the physical signs of a great dilated heart have been for a considerable period of time unmistakable. In fatty degeneration not attended with dilatation, the impulse, though weak, can be usually felt, even though it cannot be seen; not so in dilatation. No increase exists in the area of percussion dulness in fatty degeneration, while in dilatation dulness extends beyond the normal borderlines, to the right when the right heat is dilated, as in the case before us, to the left when the left side is dilated. In this patient's case there has been of late a systolic mitral murmur present, probably due to muscular incompetence, with no area of diffusion. In fatty degeneration due to anæmia, a murmur is often heard both at the apex and at the base; this murmur is also heard with great intensity in the carotids, and in the latter locality is often associated with the venous hum. When met with in connection with other evidences of fatty change, anæmic murmurs become a valuable diagnostic sign. The first sound in fatty degeneration is feeble and undefined. In dilatation, more particularly, where the walls are thin, this sound has a well marked valvular quality, rendering it sometimes short, sharp and clear. In this case the heart-muscle has undergone considerable disorganization, hence we have much the same sounds as in fatty degeneration. In the advanced stages of emphysema we sometimes find that the lung-tissue has entirely overlapped the heart, carrying the apex backward away from the chest wall;

remember that it is betrayed by a clear percussoin resonance. Dilation of the heart is frequently mistaken for pericarditis with more or less effusion. The points to be borne in mind with reference to the diagnosis of the latter disease are the higher location of the apex-beat, the vertically extended dulness which in this disease exceeds the area of impulse, the increased clearness of the heart-sounds near the base, at times the pericardial friction sounds, the absence of dropsy, and the history frequently of an attack of rheumatism. On comparing these physical signs with those of dilatation as before detailed, obvious differences will be at once observed; and in the absence of any organic vulvular disease we may correctly assume that the obstruction to the lesser circulation due to the emphysema was the cause of the dilatation. The explanation of the early occurrence of the dilatation in this case is to be found in the fact, as before intimated, that degeneration of the myocardium was probably in progress at the time of the occurrence of the increased endocardial blood-pressure. Increased stimulation, due to increased blood-pressure, of such heart-walls will not lead to compensatory hypertrophy, as in the normal condition of the walls, but will give rise to dilatation almost at once.

The treatment may be divided into medicinal, regimenal, and dietetic. As to diet, it should be restricted to nutritious substances that are easily digested and largely albuminous; perfect digestion obviates many otherwise distressing symptoms. The regimenal management of such patients is of paramount importance, for all forms of excitement should be avoided, as well as straining efforts of all kinds. The clothing should be carefully attended to, flannels being worn throughout the year. Warm baths are to be shunned, but sponging of the surface, followed by gentle friction or the use of the flesh brush, is to be highly recommended. Rest is excellent, more particularly where this condition is associated with chronic valvular disease; this frequently suffices to restore the equilibrium between the labor to be performed by weak hearts and a disturbed circulation, but once this disturbed balance has been restored, gentle forms of exercise, alternated with liberal periods of rest, will go far toward preventing a recurrence of the accident, and tends to develop the entire muscular system, including the involuntary system of muscles, obviating over-stimulation of the cardiac muscle, and this fact explains the good effects obtained from Oertel's system, who recommends the severer forms of exercise, such as hill-climbing—with a view to stimulating the heart-muscle, thus aiding in the restoration of the hypertrophy. It is not simply the effect of violent exercise upon the cardiac muscles that is here beneficial, but especially the effect upon the general muscular system; Oertel's system is not to be generally recommended, for the same end can be attained by the pursuit of less violent kinds of exercise, the latter being far safer. When œdema is present, use digitalis, and, so long as it increases the amount of urine discharged, its administration will be found useful; should digitalis fail, try citrate of caffeine, which in a certain number of cases has been found to be excellent as a heart stimulant and diuretic.

Accidental heart murmurs are always interesting as they may occur when there is neither anæmia nor fever, as in certain forms of intoxication. Accentuation of the pulmonic second sound might occur in accidental heart murmurs. The accidental murmur might be diastolic in rhythm. The term "accidental" should be employed to designate all those cardiac murmurs which could not, after careful examination, be clearly demonstrated to belong to the organic class, it being clearly understood that as our knowledge extended and increased, the number of "functional" maladies gradually diminished. The term "accidental" commits us to no theory of causation and indicates no pathology which is correct, for no single theory yet reasonably accounts for all accidental heart murmurs. There may be a relative insufficiency of either the mitral or tricuspid valves, due to incomplete contraction of the heart, this latter being due to degeneration, fatigue, or to the effects of toxic agents, as in pyrexia, alcoholism, etc., and that under the circumstances the murmur might not vary in any of its essential characteristics, of quality, pitch, and intensity, or in point of maximum intensity and area of audibility, from regurgitation due to organic disease at the same orifice. The theory of Potain in regard to cardio-pulmonary murmurs seemed a possible explanation of some of the accidental murmurs; in all cases of organic disease the vibrations originating in fluid blood were due to the formation of fluid veins. The theory that the accidental murmurs originated in vibrations in the walls of the vessels or of the conus, and were not communicated to the moving column of fluid and so were not carried by it, might serve to explain the limited area of audibility of some of these murmurs; in many cases, especially those of systolic murmurs at the apex or of those heard over the body of the heart, a diagnosis could not always be made without watching treatment.

In a very large proportion of cases of mitral stenosis it is of rheumatic origin, and especially common in the more insidious and less recognizable forms of rheumatism; in later life, it may develop in connection with slowly developing fibrous and granular kidney; while there is undoubtedly some kind of association between mitral stenosis and tuberculosis, there is no evidence that the cardiac lesion is of tubercular origin, but rather that tuberculosis in other parts may be favored by a diminished power of resistance to the inroads of tubercle bacilli, due to defective supply of blood in the arterial system; that the absence of regurgitation in cases of pure stenosis is due to the sphincter-like action of the muscular bundles surrounding the root of the pulmonary artery; and that the characteristic alteration in the left auricle is not dilatation but hypertrophy, and that dilatation is probably introduced only with subsequent auricular breakdown. The prognosis of mitral stenosis is grave. Sansom says that in the rheumatic forms, life is rarely prolonged beyond 40 years of age —the average in his cases being 32.7 years.

Until fifty years ago dropsy was a disease, and the physician felt that he had done all that was required when he satisfied himself that a swollen limb or a distended abdomen was not due to fa or to wind or to a solid tumor, but to an effusion of water; but now the disease of one generation becomes the symptom of the next. Years ago physicians were satisfied with declaring that a patient's complaint had turned to "the dropsy," and explained the effusion as the result of relaxation of the fibres, of sinking of the animal spirits, or of defluxion of a cold and moist humor; so much easier is it to explain than to investigate, and

so recent is the conception of medicine as a natural science, as Pye Smith points out. At the present day we regard the recognition of dropsy, like that of paraplegia or amaurosis as only a step, which is not complete until we have assigned every symptom to its true cause and traced them all to a definite anatomical lesion or to some poisonous influence or internal cause of derangement. The difficulty of investigation is shown by the fact that when it was ascertained that the urine of dropsical patients would often become solid with heat, the fact was supposed to depend upon the effused serum being absorbed and excreted in the urine, so that albuminuria was regarded as the result of dropsy. Bright did not discover that dropsy and albuminuria often go together; that fact was well known before. His great merit was that he connected both these symptoms with anatomical changes in the kidneys; it was the combination of new facts in morbid anatomy with improved methods of clinical observation which made their discoveries bear fruit. The simplest example of dropsy is the local œdema which follows from obstruction to the return of blood by pressure on a limb, as when a ring is too small for the finger or a fractured leg is too tightly bandaged; here the arteries, with their thicker walls and higher blood-pressure, allow the flow of blood, but the more yielding veins do not permit its return. Also probably the pressure on the lymphatic vessels may help in producing the result; but that this is not the essential cause of œdema seems proved by the fact that it will follow thrombosis of a venous trunk without other complications, for it is true that ligature of the principal vein of a limb will not produce œdema in animals so long as the flow in the lymphatics is active—that is, so long as the effused serum can be rapidly taken up from the lymph-spaces and carried off by the lymphatic vessels; but in most cases of vein-obstruction, this lymphatic absorption does not keep pace with the exudation from the veins. The immediate effect of obstruction to a venous trunk is to raise the blood-pressure in all its tributary vessels, and under this pressure the liquid and soluble part of the blood transudes through the capillaries and venules into the lymph-spaces of the areolar tissue; water transudes holding the mineral salts and albumen in solution, together with minute quantities of yellow pigment and other soluble aqueous extractives. What does not exude is the corpuscular part of the blood and the constituent which is essential for coagulation of fibrinogen. That this transudation or effusion is not due to the physical laws of osmosis is clear, since colloids like albumen and globulin would remain in the blood, while only crystalloids like chloride of sodium and sugar would pass out with the water; the endosmotic currents from the fluid of lower to that of higher specific gravity—that is, from the lymph-spaces to the blood vessels—would always exceed the exosmotic from the blood to the lymph. It is somewhat difficult to apply even the physical laws of diffusion under pressure to the clinical facts with which we are familiar; for experiment shows that the skin of frogs and the veins of mammalia, while their epithelium is uninjured, offer far more resistance under pressure than do dead animal membranes. There is no question of the direct effect of increased intravenous pressure in producing exudation; but it seems probable that this effect is modified by the peculiar physical qualities of the living endothelial plates through which the outgoing stream must pass. The same result of locally increased pressure in œdema of a limb is apparent in one of the traditional varieties of dropsy, that which is called "portal" or "hepatic"; increased pressure in the portal blood-stream is due either to compression and occlusion of the trunk of the portal vein, or more frequently to increased pressure upon its capillary vessels in their course between and through the lobules of the liver. In the spleen this venous congestion leads to swelling and hardening of the organ; in the gastric, and less constantly in the intestinal, mucous membrane, to hemorrhage; while serous exudation takes place from the visceral peritoneum; the peritoneal veins do not open directly into the portal system, and we have no poof that in portal ascites the parietal peritoneum takes no part in the exudation; yet the relation of portal obstruction to ascites is far too close to be accidental. Cardiac dropsy, like almost all the other symptoms of valvular disease, can be directly traced to a mechanical origin, for the pathology, like the physiology of the heart and vessels, is almost purely that of a hydraulic machine, and can be more or less perfectly represented on a machine. Any constriction of a cardiac orifice, any defect in the valves, either from changes in their substance, which prevent their closing a normal orifice, or from dilatation of the orifice, which makes nomal valves incompetent, will inevitably produce congestion, fulness, over-pressure in the parts behind the seat of disease, and anæmia with low pressure in the parts in front, so that we may physiologically divide the symptoms of cardiac disease into those of venous congestion and those of arterial anæmia. The latter predominate in uncomplicated aortic cases which are marked by pallor, syncope, breathlessness, and liability to sudden death; the former in primary mitral cases, in those of dilatation of the right cardiac chambers from chronic obstruction of the pulmonary circulation, in the latter stages of aortic disease when the mitral valve has given way, and in the last period of chronic Bright's disease, when hypertrophy of the left ventricle is succeeded by dilatation, and a small, hard, renal pulse becomes irregular and compressible; the result of systemic venous congestion is twofold. On the mucous surfaces the distended venules give away, and hemorrhage relieves the pressure; thus, hæmatemesis may result by the same mechanism as in the cases of portal congestion from cirrhosis. Or where hemorrhage does not take place, an organ becomes swollen, dark-colored, firm, or even hard in texture, as the spleen, the kidneys, and the lungs from long-continued mitral obstruction. But the same congestion in the skin and subcutaneous tissue, and in the serous membranes, in all the lymph-spaces, large or small, which are lined by endothelium, leads not to hemorrhage, but to exudation of serum from the distended vessels, taking place first and most easily beneath the skin; next in one or the other pleura or in the peritoneum; to a much less extent in the pericardium; but little, if at all, in the tunica vaginalis, in the closed cavities of the brain and cord, or in the synovical sacs. The mechanical nature of this dropsy is shown by its so strictly following the law of gravity; cardiac dropsy begins in the ankles, where any congestion of the veins is most favored by the weight of the blood. When the patient takes to his bed it affects the back, loins, and upper ex-

tremeties; and one arm is more swollen than the other according to the side on which he habitually lies. If the face show any œdema it is before it is raised from the pillow in the morning. The dropsy of Bright's disease, the third of the traditional clinical varieties of anasarca, is now known to be of two separate pathological kinds. The one which occurs toward the end of the most chronic cases with insidious origin, atrophy of the renal cortex, and cardiovascular changes, is mechanical in pathology and cardiac in origin; coming on only when the pulse and other symptoms give evidence of cardiac failure, it affects the feet first, and the face but little; and it may be accompanied with extreme congestion or even hemorrhage in the lungs or stomach. There remains the much more striking, extensive, and characteristic anasarca which marks both early and later stages of the more acute form of Bright's disease, with its definite onset, and the well marked characters of the urine which mark tubal or parenchymatous nephritis. This dropsy is anasarca in the strict sense of the word, affecting all the lymph-spaces of the body at once, the integuments most rapidly and the serous membrances more gradually. It is not governed by the law of gravity, except in a subordinate degree. Its characteristic distribution depends rather upon the absence of fat and the presence of distensible skin and loose connective tissues. This applies especially to the œdematous conjunctiva, which produces the traditional "bright eye" and "the tear that does not fall," to the baggy lower eyelid, and to the often prodigious œdema of the scrotum and prepuce. The almost universal anasarca by mechanical distention of the skin and pressure on the vessels, aided by the anæmia which is part of the disease, produces that extreme and striking pallor which it is said Bright himself recognized as a symptom of tubal nephritis in the remark that "a large white man means a large white kidney." Pathologists, from Bright, Traube, Bartels and Cohnheim, Johnson and Dickinson, among many others, have put forth various theories to explain it; but none have gained general acceptance. When we have separated the later mechanical dropsy of chronic Bright's disease, which has just been referred to, the true renal anasarca cannot be ascribed to a hydraulic origin. On this hypothesis, there is no valid physiological cause for its occurrence; its distribution would be different; and as a matter of fact it does not occur in other forms of disease when the hydraulic conditions are favorable. Again, this distinctively renal anasarca is certainly not the mere result of scanty secretion of urine, since it often continues when the kidneys have reattained or surpassed their normal excretion of water; and, on the other hand, it does not accompany great diminution, or even suppression, of urine, when this is due to other causes than nephritis. No anatomical evidence has yet been offered to support Cohnheim's hypothesis of a change in the walls of the capillary vessels which favors the escape of serum. Nor does any change in the constitution of the blood, the diminution of albumen and other colloids, the diminution of red corpuscles, or the excess of urea, explain renal dropsy; since we find nothing like it when anæmia or albuminaria or uræmia is present from other causes, not even when they are all present together. Probably the dropsy of Bright's disease, in its more acute and characteristic form, is not a passive exudation at all, but inflammatory. In the first place, this agrees with its universal distribution and comparative independence of gravity as above described. Next, it explains its absence in the most chronic and least inflammatory form of Bright's disease. Again, it brings under a common explanation the two conditions, clinically so closely and inextricably united, of dropsy and serous inflammation. Every practical pathologist knows how difficult it is to draw the line between hydrothorax or ascites in cases of Bright's disease, and pleurisy or peritonitis with effusion. The difficulty is far greater than in cases of cardiac dropsy. If the serous exudation be itself inflammatory we need not seek to draw artificial distinctions. Lymph, serum, or occasionally even pus, are alike the exudation of renal peritonitis, pericarditis, or pleurisy. The same view brings into line with the dropsy and serous inflammation of renal disease the important and characteristic lesion known as acute œdema of the lungs. This, in typical cases, is unaccompanied by a congestion, and is perfectly distinct from the bronchitis or pneumonia which may occur as renal complications. It presents just that combination of dropsy with inflammation seen in the exudation of the serous membranes and the anasarca of the whole body. On this hypothesis we should be able to group together these three characteristic symptoms and say that in acute and subacute tubal nephritis there is, as part of the disease, more or less extensive and severe inflammation of the principal lymphatic spaces of the body, viz., of the loose connective tissue under the skin, of the air-vesicles and interlobular connective tissue of the lungs, and of the cavities formed out of the great pleuro-peritoneal lymph-sac. In each case the exudation is always watery, frequently fibrinous, rarely purulent, and never hemorrhagic. Beside hepatic, cardiac and renal dropsy, there are certain minor varieties of anasarca, the pathology of which demands notice. Such are the œdema so frequent in cases of phthisis, that which often attends anæmia, the anasarca of scurvy, and the moderate œdema which is often seen during convalescence from fevers or other acute diseases, and disappears with the complete establishment of convalescence. In chronic phthisis, there is evidence of dilatation of the right side of the heart and general venous congestion, as in other examples of chronic obstruction in pulmonary capillaries. When the dropsy follows acute diseases we find that the pulse is weak and compressible, while the patient is liable to giddiness, or even syncope—at first on merely raising the head and afterwards on standing upright. In these cases there can be no doubt that œdema of the ankles depends upon a weak left ventricle causing low arterial blood pressure, with stagnation in the veins, particularly where the circulation has gravity against it. The cardiac muscles suffer in the same way as do the muscles of the limbs, and the circulaation is weak for the same reason as the patient's grasp is feeble and his gait uncertain.

In cardiac dropsy try some such preparation as the following (Pye-Smith):

℞ Ext. strophanth., fl.
Ext. convallariæ fl., aa ℥ii.
Tr. digitalis, ℥iiss.
Glycerinæ, q. s. ad ℥ii.—M.

Sig.—One-half teaspoonful every three hours, in water.

Remove causal conditions in individual cases; if the patient is not the victim of general atheroma and fatty

degeneration, assist him by directing active treatment towards the emphysematous condition of his lungs. In emphysema, first arrest pathological degeneration of the walls of the air-cells; and, second, restore the mucous membrane of the bronchial tubes, which membrane is usually in a state of passive hyperæmia, to a healthy condition. To fulfil the first object give iron and arsenic in small doses long continued, and for the abnormal condition of the bronchial mucous membrane give iodide of potassium or the syrup of hydriodic acid. Iron, arsenic, and strychnine should also be employed in this case for their effects upon the heart-muscle. The following combination can be used:

℞ Ac. arseniosi, gr. i.
Ferri sulph. exsic, gr. xxi.
Strychnini sulph., gr. ½.
Ext. gent., gr. xxiv.
M. ft. pil. no. xxi. div.
Sig.—One three times a day after meals.

After aspirating the chest give the iodides, with excellent results. These were given in the recipe following:

℞ Syr. ferri iodidi, ℥iiss.
Pot. iodidi, ℥i.
Syr. limonis, ℥iii.
Syr. sarsap. co., q. s. ad ℥iv.—M.
Sig.—A dessertspoonful three times daily in water.

Should the dose indicated fail to cause absorption after having exhibited for two or three weeks, increase it from a dessertspoonful to a tablespoonful. Bleeding can be resorted to with a view to relieving pseudo-apoplectic attacks, with gratifying results. Whenever in cases of dilatation, with or without valvular disease, there occurs marked engorgment of the right heart, as shown by cyanosis, dyspnœa, etc., venesection will be found to give prompt relief. The amount of blood necessary to be drawn is not, as a rule, large—from eight to twelve ounces, for example—though it should be allowed to flow freely. Blood-letting also relieves the pain which is often experienced in the region of the heart in these cases. The patient suffered occasionally from nocturnal attacks of asthma. One of these seizures, you will recollect, was relieved by a dose of Hoffmann's anodyne and sinapisms. During a previous attack we were obliged to resort to the hypodermatic injection of morphine, using only one-sixth of a grain, with immediate relief from the attack.

Large doses of morphine, administered in this manner, are seldom required, besides, they would not be free from danger, while nitrite of amyl will sometimes be found useful.

Palliative surgery is rather reprehended by E. G. Janeway (*Med. Rec.*, March 17, '06). If a primary disease cannot be removed, and if death in time is inevitable, it is hardly right to recommend such operations as the production of a gastric fistula in cancer of the œsophagus or an artificial anus in an inoperable cancer of the rectum not markedly obstructive. Janeway would not urge the patient to dubious palliation: but would take counsel with the patient's family or his near friends, placing the matter candidly before him, explaining the nature of the disease, the prognosis with and that without operation. If they decide against surgical interference, Janeway would not consider they have acted very unwisely.

METHODS OF FACILITATING NORMAL LABOR.

BY W. T. MARRS, M.D., JEWETT, ILL.

EVERY man who practices obstetrics is interested in those methods and measures which assist in terminating normal labor and which are yet safe and conservative. The long hours of suffering on the part of the patient and the weary hours of waiting endured by the physician may often be materially shortened if we get out of the habit of maintaining a "masterly inactivity." The suggestions that I offer are based upon actual experience derived from hundreds of cases. Of measures to shorten labor I shall first speak of

Forceps.—I do not believe that the average obstetrician meets in a lifetime very many cases that are actually "forceps cases." However, every medical man should acquaint himself as thoroughly as possible with these instruments, but should exercise due deliberation before making up his mind to use them. A great many physicians, especially young men, think if natural labor is prolonged and they do not terminate it with forceps they will be criticized as lacking ability and skill. The sooner they abandon these ideas the better it will be for them as well as their patients. Hemorrhage and puerperal paroxysms are about the only conditions requiring speedy delivery. The value of the forceps as an agent to produce traction is somewhat overestimated and often abused. Forceps, when properly used, serve mainly three useful purposes: to compress the child's head; to rotate the head into a wider diameter; to act as a foreign body to promote contractions. The second and third purposes may usually be well accomplished by the application of one blade. No matter how skilful the hands that use them the forcep manipulation is not an artistic job nor one in which we can promise absolute safety to mother and child. There is very little chance for harm in the application of only one blade.

Ergot should be mentioned only to be condemned. It might be used in a goodly number of cases without injury, but a ruptured uterus will some day awaken the doctor to its danger.

Chloroform.—In the great majority of cases chloroform gives beneficent results. It allays nervousness and stops ineffectual pains, permitting uterine contractions to go on without interruption. I have never seen any untoward results from the use of chloroform in obstetrics. It should be pushed only to the extent of blunting the nerves and taking the raw edge off the woman's suffering. The dilatation following its use is often remarkable. There is *nothing* absolutely sure about a woman, so we find once in a while a case where chloroform does no good but rather seems to retard labor.

Stimulants.—Quinine is quite effective in strengthening pains if given in sufficient dosage to produce cinchonism. The headache and nervousness following its use are often quite unpleasant. Whiskey sometimes does good, but also leaves the woman with more or less depression and headache. Strychnine acts too slowly to be of value ordinarily. Copious draughts of pepper tea do good work and gives employment to the old ladies in attendance. It is non-toxic and cannot do harm, but being a diffusible stimulant, good results often follow its use. No doubt, any other kind of hot drinks would be equally effective.

Sedatives.—They often do good by quieting the nerves and relieving false pains. Morphine is the drug usually chosen. It relieves suffering to some extent and in a goodly number of cases accelerates labor, while in almost an equal number of cases labor seems to be retarded by its use. Chloral internally and per rectum usually aids in relaxing a rigid os. Antispasmodics are useful where the patient is nervous and the os unyielding. Among these we may mention viburnum, the bromides, hyoscine, etc.

Hydrotherapy.—A hot foot-bath or a sitz bath will often work wonders. Hot moist pads applied to the vulva and perineum have quite a relaxing effect.

Emetics.—Where other methods fail to relax a rigid os and perineum I have in perhaps a hundred cases given a capsule or two of powdered ipecac with most excellent results. This suggestion I have never seen in a medical journal only over my own name.

Other Measures.—Some of our authors say to keep the woman flat in bed after the first stage of labor has set in. These authors, I fear, have not an extended clinical data on which to base such assertions. The woman may, there being no contraindications, walk about or sit in a chair until the os is practically dilated. Do not let her sit up in the bed, as her cramped position is sure to prolong labor. The woman when standing or on her knees is aided by the gravity and general mechanical effect which the child exerts. When labor is nearly complete, but the vaginal delivery difficult, the woman may kneel over a chair placed in the bed. The physician can in this position guard the perineum and regulate the on-coming head very satisfactorily. Of course the conditions are not esthetic, but the latter cannot always be regarded in the practice of obstetrics. It is presumed that every man who enters the accouchement chamber is a gentleman —for the time being, at any rate. This being the case, very few patients will fail to heed the doctor's requests.

A bandage applied snugly around the abdomen is often of signal service. A medical friend in the Philippines states that the native woman while in labor is sat upon by some big, husky man and otherwise subjected to the cruellest treatment with a view to facilitating delivery.

It should not be forgotten that a tedious case is often expedited by a rectal injection. I have known a number of cases of labor to be prolonged on account of impacted feces.

Gastro-Enterostomy.—It has been with no little surprise that we have noted the stress laid upon this operation, in general considerations of the surgical treatment of gastric affections. It has been lauded by so many surgeons and practiced successfully in so many instances, that it enjoys a vogue quite out of proportion to its theoretic indications. In 1904 Campbell P. Howard reported to the American Gastro-enterological Association the results of a statistic study of the frequency of gastric ulcer. In 161,599 admissions to various American (including Canadian) hospitals, gastric ulcer was observed clinically in only 930 cases or 0.57 per cent. The relative frequency varied from 1.74 per cent. in the Massachusetts General Hospital (which also had the largest number of cases, 351), to 0.12 per cent. for St. Joseph's at Baltimore and the Arapahoe County Hospital at Denver (the smallest number being 4 cases for the former). Post mortem records of 10.841 cases covering the same territory but not altogether the same institutions showed a frequency of 1.32 per cent., the highest incidence being 2.9 per cent. for the Massachusetts General, the lowest 0.69 per cent. for the Royal Victoria at Montreal.

These comparative statistics by no means indicate that only about 40 per cent. of ulcers are correctly diagnosed. For instance, the Massachusetts General supplied 351 ulcer cases, but only 29 out of an even 1,000 necropsies. Obviously, gastric ulcer would make up a greater proportion of fatal than of non-fatal medical cases. Then, too, many of the cases presenting ulcers post mortem, include ulcers due to chronic vascular disease or minute lesions, not diagnosticable during life and scarcely requiring treatment for the ulcer itself, even if it could be diagnosed.

Some of the recent surgical reports imply an incidence of gastric ulcer far in excess of the frequency thus established. Indeed, so conspicuous is the discrepancy, that we must suspect that the surgical diagnoses have not always been correct, since gastric ulcer is not yet generally recognized as a distinctly surgical disease.

Comparative statistics of mortality of gastric ulcer under medical and surgical treatment are so variously given by different writers and the conclusions drawn as to the relative advantages of the two forms of treatment are so diverse that it is, at present, impossible to form an unbiased opinion. From a moderately large personal experience, we are loath to admit the hopelessness of medical treatment or the statistic superiority of operative measures.

At any rate, gastro-enterostomy does not fulfil the theoretic indications present in ordinary gastric ulcer. (1) This operation does not remove the lesion itself. (2) It does not influence the underlying tendency to vascular spasm—or relaxation—which is the probable underlying cause of acute peptic ulcer, nor the degenerative vascular lesions of ulcer in the later years of life, nor the specific infectious processes and circulatory obstruction which underlie other kinds of ulcer. (3) It does facilitate the rapid passage of chyme through the stomach, but, in many cases, the pylorus itself is abnormally relaxed, and in other cases there is no abnormal retention. (4) The drainage of gastro-enterostomy is not necessarily free and, certainly, does not afford the physiologic rest to the stomach that can be obtained for considerable periods, by rectal alimentation. (5) In so far as ulcer is due to the digestive action of acid gastric juice, gastro-enterostomy is only partially efficient in protecting the stomach while it transfers the danger to the intestine—a real danger, in the light of the considerable number of consequent duodenal and jejunal ulcers, relatively to the comparatively small opportunities for observation.

The immediate objections to the operation are its direct surgical mortality and the possibility of establishing a vicious cycle of bile. With improved technic, the former danger is not very great, the Mayos, for example, having had only 6 per cent. of deaths in a series of 271 gastro-nesteostomies (wrongly called gastro-jejunostomies). A considerable number of devices have been used to prevent the vicious cycle. The very number renders one suspicious of their efficacy, even with favorable reports from surgeons, for the one particular modification favored.

In gastric cancer, gastro-enterostomy, curiously enough, yielded better average results in prolonging

life, than attempts at radical removal. Still, physicians and patients are reluctant to advocate or submit to an operation that is avowedly palliative, and, by careful attention to diet, including rectal alimentation, and by lavage, etc., surprisingly few cases fail to be kept free from the direct results of gastric stagnation.

As in the case of most ulcers, cancers not situated at the pylorus or very near it are, obviously, not directly benefited by gastro-enterostomy. Some surgeons have practiced gastro-enterostomy for various conditions of the stomach and bowel, without any apparent indication, but simply on "general principles," a term that, as ordinarily used in medicine, means without any underlying principle at all. We have even known of its being done in cases of very free drainage through the pylorus, without any definite, localized lesion of the gastric wall. In one case, the surgeon strenuously advised gastro-enterostomy in a case of general failure of vitality, due to premature senility—or vice versa—and in which the principal trouble was a mucous colitis. His argument was that, since medical treatment had failed to give relief, surgery should be tried.

We would point out to our readers that gastro-enterostomy can be of direct value only when there is some form of pyloric obstruction. This obstruction should be demonstrated, not guessed at, and, certainly, when obstruction is proved to be absent, only peculiar circumstances can justify or even excuse this operation. Even when obstruction is evident, the question should be thoroughly discussed whether it cannot be relieved by some other form of treatment—as it almost always can be unless the obstruction is entirely organic. Furthermore, a successful gastro-enterostomy entails a subsequent abnormal condition whose result may be much more serious than is at present apparent. While the full reasons for the retention of ingesta in the stomach and their rhythmic discharge into the bowel are not yet known, they are partly explained by physiology and we should be most reluctant to overthrow any natural state without ample demonstration of its unimportance or of the superior advantages of some condition artificially established.

Syphilis and its treatment was recently discussed by Jonathan Hutchinson before the Hunterian Society in London. The virulence and mortality from this disease in the United Kingdom seems to be decreasing; in 1875 the deaths were 2,140, whereas in 1904 there were 1,834. Had the mortality kept pace with the increase of population the number of deaths would have reached 3,000. No doubt this improvement is due to more effective modes of treatment, and to the fact that the disease is now generally milder in type. Mercury should be given in the primary and secondary stages of syphilis —the earlier the better, provided the diagnosis is certain. The drug should not be given otherwise, and if necessary one had best wait until the appearance of the roseola. It is, however, possible to prevent entirely and anticipate the secondary symptoms, if one is sure of the nature of the mitral lesion; tertiary symptoms are thus oftentimes prevented. Many chancres are sufficiently characteristic to justify immediate treatment. As much mercury should be given as can be borne, avoiding ptyalism. (We have, however, seen tertiary patients with gummata who had been "soaked" with the iodides and mercury, improve greatly upon cessation of these drugs and the substitution of simple tonics. The anti-syphilitic specifics had of course to be resumed later). Hutchinson considers there should be continuous treatment for a year. In the first and second stages the object is to kill the parasite. In the tertiary stage the destruction of the parasite is no longer the object of treatment. Tertiary changes are often single, restricted to one organ or tissue, very rarely general; there is no reason to regard them as of blood origin, toxic or otherwise. The parasite is then no longer existant. Tertiary symptoms are commonest where early treatment has been delayed or inadequate. The inunction and calomel vapor bath methods are both efficacious, but inconvenient and expensive and liable to be prematurely discontinued. Intramuscular injections are very dangerous, excepting in the hands of the expert, and should be reserved for special conditions, especially in the army. Tertiary symptoms and either inflammatory, degenerative or gummatous. The iodide of potash internally, and iodoform, iodol and chinosol externally are specifics and often produce permanent cure of gummatous growths. Degenerative changes such as tabes are rarely arrested by specifics. All conditions attended by inflammatory changes, such as general paresis of the insane, should have small doses of mercury continued permanently. Hutchinson believes that if general paresis were attacked at a very early stage a cure might be obtained. Herein he agrees with Dana. Tuberculosis sometimes complicates tertiary syphilis. Specific lupus is a combination of the two and some "relapsed chancres" are tuberculous. A man may safely marry if the treatment has been continued for two years from the date of the chancre; a much longer period, however, is essential for a woman. A man with a tertiary symptoms may have quite healthy children. Syphilis cannot be transmitted to the third generation, declares Hutchinson. The younger children in syphilitic marriages are free from the syphilitic taint and are well-grown and robust; this fact opposes the theory that the disease, when incapable of transmitting its characteristic symptoms, might still cause arrest of development. Syphilis is not an appreciable cause of race degeneracy. Syphilitic iritis and keratitis are more common in female than in male infants; Hutchinson cannot tell why this is so.

Dr. Guide Bacelli, a Roman physician, received graceful tributes on the occasion of his fifty years' professorship in the Policlinicum. To celebrate his jubilee, and at the same time that of the institution with which he was connected, the Italian King and Queen, together with many notabilities, assembled at the capitol and honored him in a manner resembling the mediæval ceremony of crowning a poet. He was addressed as the chief ornament of the Italian medical world; the man who established the claims of experimental medicine; a man whose great scientific labors did not prevent his playing an important role in the politics of his country, and among the presents he received was an album containing the autographs of six thousand physicians. Bacilli has done great work in malarial and other fevers. His confreres claim that, in treating Victor Emanuel II., he was the first to use pure oxygen. Of his hundred or more publications, the "Patologia del cuore et dell aorta" is the most important; this he wrote after his mother had died of heart disease. He was, states the *Evening Post*, four times appointed minister of public education; and in this position he accomplished much that benefited the cause of art.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, SEPTEMBER, 1906

People wish to be settled; only as far as they are unsettled, is there any hope for them.—*Emerson.*

THE PLAGUE IN JAPAN.

IN one of our popular magazines there is running a series of articles on the menace of the Japanese in the commercial world. The writer makes out a very startling case. He shows that the Japanese workman lives on practically nothing—at least, so it seems to Occidental eyes—while his energy is untiring and unceasing. This little brown man is adaptive, silent and full of ambition. Thus the Japanese, untrammeled by past traditions, are taking our best ideas and plans and utilizing them against ourselves. In addition the government permits no monopolies, but instead calmly assimilates the more profitable American monopolies for themselves. In this way this writer shows that the Japanese are a real serious menace in the commercial world.

Another side of the picture is shown, however, by the famous Professor Kitasato in an article in a recent number of the *New York Medical Journal*. He shows what a drag disease is to Japan, especially the plague. Even now, when we read that there were a million visitors in Tokyo in June, the plague in all its horror is spreading through the country.

Professor Kitasato shows what a splendid fight Japan is making and in turn teaches us many valuable lessons on the subject. In the past ten years the plague has been epidemic in various parts of Japan; in 1899 and 1900 in Kobe and Osaka; in 1901 in Wakayama; in 1902 and 1903 in Yokohama and Tokyo; in 1904 in Kobe, and in 1905 it was scattered through the country at many points. Still there seems to be three principal epidemics, in 1899-1900, 1902-1903 and in 1905, which is still prevailing.

Every time it did not seem to be patients but inanimate objects which introduced the plague. Thus vessels coming from infected ports, such as Hongkong and Bombay, brought the germs in their freight. Cotton was landed and from this the plague was started. The disease always started at a port communicating with foreign countries and spread inward. The disease always infected first the rat tribe and by the time human victims were discovered the disease was well established. Thus, in 1905 infected rats were found in February, and in May human victims were found.

The Japanese have found that a winter epidemic is generally chronic, raging for a long time over a large area, while a summer epidemic is usually acute, severe but of short duration and limited to a small area. To prevent this contagion spreading, the Japanese have tried everything and invented much more. Thus, for killing rats aboard a vessel, rat-destroying boats are used to success, while on land rat-killing devices, traps and poisons, are provided for every dwelling and warehouse. Where dwellings can be tightly inclosed, formaldehyde is used; or, if possible, the buildings are burned down and rebuilt, sewerage is enforced and filth burned. Around infected areas zinc walls are constructed and metal nets placed in the sewers; then a search is made for rats, these walls and nets preventing their escape. In Tokyo alone there are zinc walls to the length of four miles. Their use has always been followed by a great destruction of rats. In addition the government buys all rats that can be found, spending in Tokyo alone one hundred and sixty thousand dollars for this purpose since 1900. As a result five million rats have been killed and yet their number is not appreciably decreased, for they increase at an enormous rate. The Japs have found that the destruction only lessens the struggle for existence and hence the rate for multiplication redoubles.

Searching for patients is also an important part of the work of prevention, for it has been found that only about one-tenth of the cases are reported. Hence the physicians are given police power. Inspecting physicians convey suspected cases to an isolating hospital and those exposed to danger are inoculated with pest vaccine. The pest serum and vaccine have been used now in thousands of cases, but their value is not yet definitely settled, but it is thought to be favorable; thus in Taiman, Formosa, ten thousand people were inoculated and only seven were attacked by the plague, while of forty thousand uninoculated over five hundred were infected with the plague.

In treating the plague patient, the Japanese doctors have two methods; one consists in the extirpation of bubos and the other the inoculation of serum. The earlier the treatment, the more efficient it is. In a plague patient a large amount of serum is required. These two methods are the only ones which the Japanese have found of any value.

The expense to which Japan has been put by this disease has been terrific. One city alone spent more than three hundred thousand dollars in the first epidemic, while in the second Tokyo spent fifteen thousand dollars for each victim. These are the direct burdens, but the indirect effects are not estimable. It affects all domestic and foreign traffic and runs into the millions. Kitasato considers the plague the most fearful enemy of mankind.

The practical problem arises at once as to the total destruction of the plague. This cannot be done in Japan, or in San Francisco, but must be undertaken in the countries when the disease is pandemic. In India and Southern China the plague is deeply rooted, producing each year over two hundred thousand cases. Plague is a menace to mankind and should be so treated. All civilized nations should combine and fight this common enemy. Expeditions should be sent to these regions to change conditions completely. The expense would be money well invested, for it would mean the saving of millions of lives. As Kitasato points out, a small part of what civilized nations are spending for their armies and navies would be sufficient for this beneficent purpose.

THE COUNTRY DOCTOR.

IT occurs to us that it is high time to cease thinking about the country doctor as a separate species, although the best excuse for so doing is that he commonly regards himself with becoming but scarcely justified humility. Excepting that one cannot achieve fame as a teacher where pupils are few and informally taught and that one cannot secure experience in any special line unless he has a large mass of clinical material which is being picked over for special cases, there is no reason why the physician in a small town—or, for that matter, in the open country—should not be just as well trained, and have just as much experience and skill as in a large city. Nor, in ordinary circumstances, is there any reason why the country doctor should be deprived of the benefits of attrition with other physicians.

A correspondent writes us that he has recently attended a good-sized meeting of a society, nearly all of whose members are country doctors. Speaking in averages, he says the scientific program was just as good as that of any community or gathering unless special pains were taken to secure communications of exceptional value from men recognized as far above average attainments. The members and their women folk were as well dressed, as well versed in the amenities of life, college fraternity pins were as much in evidence, and the general marks of education, refinement, professional ability and success, were as abundant as in any gathering limited to residents of cities. The country doctor is an interesting type for an Old Homestead play or a dialect novel, but, in real life, we do not want, and in this particular, we rarely find a type that stands out from the general profession as a mark for our tearful sympathy or half-concealed contempt.

On the other hand, the attempt to make a hero out of the country doctor, to the disparagement of the city physician, is equally without true foundation. Without realizing it, many people have absorbed from Ian MacLaren and other writers, the notion that there is a terrible snowstorm or bridge-destroying freshet every night in the year in the country, and that the doctor, after sixteen hours of ordinary professional work, has an obstetric case or an emergent operation ten miles from home, for which he must risk his life to the elements, for the sake of charity or a very small fee.

As a matter of plain fact, both the city and the country physician, run some small risk of freezing, drowning, being upset from vehicles, encounter periods of excessive physical and mental strain, and are occasionally subjected to an infection directly from patients. In spite of these risks, they enjoy, on the average, a high longevity. Undoubtedly, the matter of transportation to and from patients, is a more serious problem for the country practitioner than for his colleague in the city. But, like any other incidental, it can be and is met, and quite simply in so far as the rigors of climate are concerned, by extra wraps, waterproofs, heaters, etc.

There seems to be a prevailing impression that the financial success of the country doctor is less than that of his confrere in the city. It must be admitted that specialization or the building up of the kind of reputation which commands large fees for small output of time and effort is almost absolutely confined to large centres of population. Comparing the general practitioner in the city and the country, it must also be admitted that a successful, routine man in the former, on account of the greater possible clientele and the smaller distances covered in seeing patients, may earn more fees in a day and that the fees are slightly higher, though the difference, in practice, is not so great as is commonly supposed. One who is literally a country doctor—that is to say, who lives simply at a cross roads—has estimated his possible earnings at about $3,500 a year, this limit being set at the point of maximum endurance in busy seasons.

While it is easy to sneer at an income of $3,500, the best statistics available place the average gross medical income at not over $1,000. We are inclined to believe that the mass of small incomes that reduce the average are found in the city. At any rate, the country doctor has, as a rule, fully the average clientele of

about 600, his clientele is rather more exposed to sickness and accident than is the case in healthy cities, and all but a small part of it is honest and financially responsible, whereas, in any large city, the paupers and dead-beats amount to probably 25 per cent. of the total population.

It must also be borne in mind that all ordinary living expenses are much less in the country than in the city. For example, an ample allowance of land for a house, barn and garden, in the country, or small village, costs about $200, whereas any fairly desirable building lot in a medium-sized city would cost about $1,500 to $3,000. Buildings cost about 25 per cent. more in the city. For rented houses, fairly comparable rates would be $100 for the country, $200 for a good-sized village, $500 for a medium-sized city and $1,000 for New York, not, of course, for identical houses and grounds, but for what would be considered appropriate for professional men of moderate means. We have heard it stated that the maintenance of a horse and buggy—not counting repairs and replacement—costs about 10 cents a day in the country or in a small village. In a medium-sized city, the same charge would be about four times as much. Moreover, while the country doctor could take care of his own horse and buggy, this would scarcely be feasible in the city. All important items of household expense are also considerably higher in the city.

Both as a matter of theory and of actual experience, it is found that the physician may usually support himself from the start, in the country, whereas, in the city, he may reasonably count on three years before this point will be reached; that a comfortable, though modest, living and corresponding social position, is earlier and easier reached in the country or small town; and that, in middle life, the relative financial standing of the physician in the community is higher.

THE FOURTH OF JULY PROBLEM.

AMONG other bad features in civilization we have the Fourth of July celebration. No more idiotic or indeed criminal custom prevails anywhere. To allow children to handle and explode explosives is a wretched piece of business. Practically we must substitute something else for the present celebration and rigidly suppress all sources of infection such as powder stores and fireworks supply houses. Already much progress has been made, but the disease is only dormant and will break out again on the slightest encouragement. In Baltimore the authorities seem to have been especially active; the following account by Randolph in the *Journal of the Americal Medical Association* is most interesting as covering the ground in a practical manner:

"What has been done to bring about a change of affairs in Baltimore? Briefly, it may be said, first, that it is very difficult to accomplish anything in a movement of this kind without the aid of public sentiment. There is a fine of $2.00 for selling fireworks and of $5.00 for setting them off in the streets. I laid all of the statistics before some of the *Sun* people, and especially the statistics of those injuries which occurred here in Baltimore and which I had collected from the various hospitals. These things were all embodied in several articles in this paper, which, as is generally known, is one of the strongest newspapers in the country. In this way public sentiment was molded. It was shown that our objections rested on the most solid sort of foundation. Letters to this paper appeared from various sources, but the spirit of reform predominated throughout, with the exception of some discordant notes. Along with these statistics the records of fires on the Fourth were also published. It was shown that the average number of alarms for the year was about four a day, while on the Fourth the alarms ran up to twenty-five and thirty. This means that the fire department was strung up to the highest tension throughout Independence Day. I laid the whole matter before Mr. George R. Willis, president of the Board of Police Commissioners, who called together the captains of all the districts in the city and gave them the most stringent orders to enforce the law. A certain number of men in citizens' clothes were specially detailed to watch out for those who either sold or set off fireworks. The police have generally looked on this law in rather a frivolous way, but with the knowledge that the public was in favor of suppressing the nuisance and with definite orders from their superiors they exhibited not a little zeal in arresting violators of the law. And it may be well to state here that the position which the police department intended to take in this matter was mentioned in the *Sun* several weeks before the Fourth, not only to emphasize the fact that our way of celebrating the Fourth of July is contrary to law and order, but also to give sufficient warning to the smaller shopkeepers not to lay in supplies of fireworks which they were forbidden by law to sell. The Fourth of July, 1904, showed thirty-five accidents, two of these being eye injuries. At the Presbyterian Eye and Ear Hospital there was not an injury of this character, for the first time in twenty years. The other thirty-three injuries were burns in various parts of the body, and of this latter class there had been, the year before, between one and two hundred. Last year the matter was revived in the same way, and the result was, that in Baltimore, a city of 560,000 inhabitants, there were only six injuries, three of these being eye injuries. What then, can a medical man do to cleanse his community of this nuisance? 1. Arouse public sentiment in your

favor, and this you can surely do by telling your fellow citizens what the records of their own hospitals and of their own fire department show, to say nothing of records from numberless private sources. This should be done through the columns of an influential paper which is thoroughly in sympathy with the movement. You can do this just as effectively as though you were urging your fellow citizens to take steps to rid the city of a scourge of yellow fever or of cholera. 2. Lay your statistics before the president of the board of police commissioners. After all he is the vitalizing force, the mainspring of the police department. Orders from a man would be very stimulating to the conscientiousness of a policeman. 3. Lay the matter also before the state's attorney and have him publish his views in the paper to show that those arrested will be treated according to the law and not be dismissed with a feeble reprimand from magistrates."

What has been done in Baltimore can be done elsewhere. But we must not forget that the glorious Fourth must still be made the glorious Fourth, and if we take away explosives we must supply their place in the juvenile world. Hence games are especially to be encouraged; all sorts of sports and celebrations should be indulged in. The communities would do well to act in a body to amuse and instruct the children of the land on our nation's birthday.

TEA AND COFFEE.

CONCERNING these beverages one may well agree with Pope:

"Pleasures, or wrong or rightly understood,
Our greatest evil or our greatest good."

There are few substances in the whole range of alimention more wholesome, beneficent or enjoyable than properly prepared infusions of tea leaves or of the coffee berry, when taken in moderation during or after meals or in the late afternoon, to tide over the body fatigued with the day's labor until the dinner hour. Taken immediately before meals, or in excess, they are a grave detriment to health, oftentimes even exceeding in this regard the vicious effects of inordinate alcoholic libations.

Both tea and coffee have the property not only to lessen the sense of fatigue, but also that of hunger; like alcohol they destroy for the time being the appetite for food. Thus they tend to prevent such alimentation as is essential to building up and sustaining the organism. All teas, however good, have this action; but in addition to this some teas act injuriously upon the stomach itself by reason of the large amount of tannin which they contain. This excess of tannin, moreover, affects meats unfavorably, hardening them and making them indigestible; bacon is already hard and thus remains unaffected; fish and eggs are softer than meat and do not suffer so much from this tannic action. Bread and butter, toasts, rusks and farinacious foods go well with tea. The different kinds of tea vary much in the amount of tannin they contain. There is less of it in China tea than in India and Ceylon teas; the latter are preferred by many on account of their aroma and their stimulating qualities, but they are not so suitable for weak digestions as China tea. The India teas are particularly strong, and are generally combined with the other teas, to improve their flavor and strength.

There is everything in the way tea is prepared. Boiling water should be simply poured on the leaves and poured off again after standing for a few minutes. Thus the delicious aroma is preserved, and only a small proportion of the tannin is extracted. But when the leaves are boiled or stewed a great deal of tannin is dissolved out, with results decidedly unsalutory. Hard water containing calcium carbonate in excess does not make good tea. When water rich in iron, which has chalybeate properties, is used, ink, very serviceable in one's correspondence, but decidedly unhealthful when ingested, is the result.

Coffee is best prepared by grinding the beans just before the infusion is to be made. The water should be at 200° F.; nor should boiling be allowed after the water is poured upon the ground coffee. The aroma is lost and much tannin is evolved by boiling, or by allowing the infusion to stand for a long time.

FIFTY YEARS OF COAL-TAR.

PLANS are making in England, Germany, and in these United States for a celebration in the coming fall of the fiftieth anniversary of the discovery of the first coal-tar product by William Henry Perkin.

This scientist evolved the color mauve. The importance of his achievement was not so much in the production of this one color, as in the many developments in chemistry which were built upon his discovery. Before Dr. Perkin's time coal-tar was a practically worthless by-product of illuminating gas manufacture. Since he began his work, however, all the colors of the spectrum have been made from it. This "waste product" has since become the source of numberless chemicals and medicaments; of artificially prepared perfumes; of saccharine, which has three hundred times the sweetening property of sugar; of various preparations used to color fruit preserves attractively; of photographic developers; of powerful explosives. The whole of synthetic chemistry has indeed been revolutionized by the methods made possible by Dr. Perkin's

work. His original essay in this field was in 1856, when he tried to produce quinine artificially; in this work he was led to oxidize aniline, and the dyestuff known as mauve resulted. Before his day dyers depended entirely upon the natural colorings furnished by plants and animals. The founding of the artificial perfume industry arose from his discovery of a method for producing coumarin in the laboratory, this substance having previously been obtained from the tonka bean and sweet clover; many of us who smoke find the weed all the more delectable because it is flavored with this compound. Indigo was later manufactured along these lines. The industry of the production of colors has indeed become enormous; five German firms thus engaged have a combined capital of $24,000,000. A single factory employs 4,500 workmen, including 145 graduate chemists, all having received their doctor's degree, 175 engineers and 500 clerks. This firm alone owns 1,200 German and 1,400 other patents.

But much more is no doubt still to come. Possibly remedies curative of bacterial infections may be evolved; although, we confess, most of those that have thus far been presented had best be forgotten as soon as may be. A great chemist declares that we shall find explosives which will not endanger human lives in the handling, but which will be more effective than those we have at present; "we shall be able to preserve materials of food for any length of time without injury to the health of the consumer" (we doubt this last, and imagine there have been enough of such experiments).

It is certain that among all these discoveries which have been based upon Dr. Perkin's work, there are some for which he certainly would not care to be held responsible. However, their development are no fault of his. He should be honored for the vastly preponderating good that has resulted in coal-tar industries during fifty years past. And this will fittingly be done. For our part, a banquet will be held in his honor in New York on October 6, and a personal token will then be presented to him. A Perkins medal will also be established to be awarded annually to an American chemist for distinguished research work; and a great chemical library, bearing Dr. Perkin's name, will be instituted, having its headquarters in New York and traveling branches covering the country. England will present to him an oil portrait of himself which is to become the property of the nation at his death. A marble bust of the chemist is also to be placed in the rooms of the Chemical Society in London, and a Perkin research fund is to be established for the promotion of chemical investigation.

The denaturized alcohol bill, providing that alcohol used in the arts or industries, and which is unfit for drinking purposes, shall be free from the internal revenue tax, has become a law.

THE INFECTIVITY OF LEPROSY.

THIS somewhat unsettled question arises from time to time. It were well for the dignity and the honor of our profession if some definite statement could be formulated with regard to the degree of infectivity in this disease. We can hardly hope, however, that any such statement will be evolved out of the somewhat rancorous discussion that has recently been taking place. In the lay press, and for the edification of the laity, one eminent worker in this field observes of another equally eminent and equally earnest and scientific: "Dr. X; why, he is no leprologist!" When amenities have reached this stage, true science stands decidedly the loser.

No doubt certain insects are carriers of leprosy bacillus; among these are the mosquito culex sollicitans, the flea of the cat, dog and hog, and the Egyptian flea, pulex cheapis and pallida. Ashmead points out very definitely, however, that the mere carriage and inoculation of the bacillus lepra does not mean that the disease has been contracted. A person may throughout his life harbor this parasite in his flesh or beneath his skin without ever becoming a leper. (Here there is a very striking analogy to tuberculosis, in which disease practically every human being, in civilized communities at least, has harbored the tubercle bacillus, whereas everybody is not, of course, consumptive.) Ashmead requires (and he claims that many others are of a like mind) that in leprosy a distinct second stage must develop in the organs and tissues of the carrier or intermediary host before the bacillus lepra can transmit the disease. What that biological stage of the microphyte outside the human body is has not yet been determined. It is presumed that, in a given country, only after leprosy has passed through its period of sporacicity (50 to 100 years), and epidemicity (50 to 150 more years), does this disease make itself manifest to an alarming degree. It then happens that hundreds are suddenly stricken, for the reason that insect life has finally become the developer of the bacillus in some fashion that readily transmits leprosy by the infected insect. Ashmead predicts that in Louisiana this alarming stage is at hand.

The scientific conclusion thus far seems to be that something more than direct inoculation of the bacillus lepra from man to man is necessary for the prompt propagation of leprosy, despite the statement of many instances to the contrary. Some fifteen years ago there were a score of internes in the City Hospital on Blackwell's Island, whose factotum was a leper. He prepared the baths for these physicians, sold them postage stamps and cigarettes; and was intimately useful in many other ways. No one feared "Joe Evans;" nor has any one of the internes who for a number of years

he zealously served evidenced the disease. Still, as Ashmead points out, leprosy is a dangerous disease to have any association with, for the reason that the exact mode of transmission is not known. "Years after direct or indirect contact with a leper, even the most trivial, one may be surprised by finding that he is himself a leper."

Why is leprosy not nearly so prevalent to-day as it was in ancient or mediæval times? In the first place, much which we now know to be tuberculosis and syphilis was in those times classed as leprosy. Again: Leprosy has followed the law of all infections—its virulence has become diminished in the course of the centuries.

CONCERNING THE EGG.

THE silly season is well on; this fact is made evident by many incontestable and time-honored indications. For instance, the question, "Is life worth living?" has been successfully launched and is prompting the writing of many a letter to the newspapers, signed "One Who Knows," "Citizen," "Pro Bono Publico," "Verb. Sap.," and many another old friend. Meanwhile life keeps right on being lived —and enjoyed by the vast majority of us, despite some fairly heavy drawbacks.

That other question, "Should the word 'obey' be eliminated from the marriage ceremony?" is well under way, keeping the yellow press in flourishing condition. As if it made the slightest difference whether the word is there or not. The somewhat inconsequential question, "Whether clergymen should take long vacations?" has recently received a successful send-off, and no doubt will "be good" (as the newspaper writers put it) for many a column at so much per.

Eggs seem now to have furnished a new topic to be added to the best of hot weather trivialities. And this is odd; for the hen who lays them is a most serious minded creature, with no nonsense about her. She has no use for the inanities of life. For her life is real, life is earnest, life is not an empty dream; it is, on the contrary, a most serious business. She ingests corn and other suitable vegetation, metobolizes without ceasing, and achieves a truly stupendous output of eggs. She should have monuments erected to her honor in every village, upon every roadside. She is industry and beneficence personified; in which she is the absolute antipodes of her consort, who, except for one function, is throughout his life, no more than a cheap bluff, a barnyard hobo. The dietarians of the lay press seem first to have been upset by the President's breakfast, which, so it is stated. consists mainly of hard boiled eggs. Thus has arisen a furious argument over the comparative value of hard and soft boiled eggs; whether they were not best scrambled or schirred. Is the egg intrinsic and inevitable in the conduct of the strenuous life? Could Cambridge, who recently won a boat-race on an exclusive egg diet, have achieved this result on roast beef or any other diet? Into the discussion of such questions as these the most learned professors of dietetics, physiologists, bacteriologists, sociologists (of course, they are in everything), health commissioners, poultrymen, cooks, grocers, politicians and inspectors of public buildings have been drawn, and many more who were not asked have given their opinions gratis for the good of the world and the improvement of the race.

Among the many astute opinions, we submit that of Dr. Heine Marks (what fun his namesake the great Heine would have got out of all this), who addressed the St. Louis City Council. Speaking with great decision, he attributed the most appalling disasters to the unrestricted production of eggs. "I think there should be some law governing the fashion in which chickens and eggs are produced to-day." We agree with him heartily; the scheme of things should be so readjusted that the hen should have at least some of the pleasures in life which she so richly deserves, and that more of the work and stress of life be placed upon her comparatively worthless consort.

Meanwhile one of the things which makes life worth living for us is the gratification of expecting two delicious elliptical bodies besides our coffee cup every morning. Perhaps not hard boiled; soft boiled—three minutes and a half—would be our preference. The President is a safe guide in many things; but it would be slavish to follow him in everything.

Manuel Garcia, the celebration of whose one hundredth birthday was noted in these columns, died recently in England. He was the discoverer of the laryngoscope and one of the most famous singing masters of his age. Garcia's discovery was a mere accident. He found, in the shop of a Parisian instrument maker, a little mirror attached to a stick, with which it occurred to him to try to see his vocal cords in action with the aid of a ray of sunshine. This led him to an endeavor to place the art of voice building upon a scientific physiological basis. Although he communicated his ideas (states the *Evening Post*) in a lecture before the Royal Society, little attention was excited; and it was not until the quarrel of Türck and Czermak, some years later, regarding the invention of the laryngoscope, that the real inventor became known. In 1861 the Paris Academy of Science divided the Mothyon prize between Türck and Czermak, "but all laryngologists long ago discovered to whom the real credit for an epoch-making discovery belonged."

BIBLIOGRAPHICAL

A Compend of Operative Gynecology. Based on Lectures in the Course of Operative Gynecology on the Cadaver at the New York Post-Graduate Medical School and Hospital. Delivered by William Seaman Bainbridge, M.D., Adjunct Professor of Operative Gynecology on the Cadaver, New York Post-Graduate Medical School and Hospital, etc. Compiled with additional notes, in collaboration with Harold D. Meeker, M.D., Instructor in Operative Gynecology on the Cadaver, New York Post-Graduate Medical School and Hospital, etc. 12mo, cloth, 76 pages. Price, $1.00, net. New York: The Grafton Press.

This work, while particularly suited to the needs of post-graduate students operating on the cadaver, will be found of distinct value to the busy gynecologist. All gynecological operations of merit, with their latest modifications, are described concisely, but with sufficient detail to make the work decidedly practical. A number of original points of worth in the operative technic are embodied in the text.

The Practice of Pediatrics by Eminent Authorities. Edited by Walter Lester Carr, M.D., Consulting Physician to the French Hospital; Visiting Physician to the Infants' and Children's Hospital, New York. In one handsome octavo volume of 1014 pages, with 199 engravings and 32 full-page plates in colors and monochrome. Cloth, $6.00, net; leather, $7.00, net; half morocco, $8.00, net. Lea Brothers & Co., Philadelphia and New York, 1906.

This is one of a series of three companion volumes dealing respectively with Gynecology, Obstetrics, and Pediatrics, and jointly covering this whole domain in the light of the world's latest and best knowledge. The volume on Pediatrics is from the pens of well-known authorities in America and England, who have been selected as peculiarly well fitted to write on the subjects assigned to them. The authors have kept in mind, first, the clinical picture of each disease, and, second, the best methods for its treatment. This plan has allowed each contributor to give his own observations and the therapeutic measures which have produced the most satisfactory results. Naturally this adds to each contribution a personal element which is entitled to consideration, as the authors are, without exception, clinicians and teachers of wide experience.

Under the able editorship of Dr. Carr, a great fund of information has been arranged most conveniently for reference and study; over-lapping and repetition, so frequently found in composite books, has been avoided, and the volume furnishes a veritable encyclopædia of our present day knowledge in Diseases of Children, charmingly written and rich with the finest examples of the illustrator's art.

Diseases of the Nose, Throat and Ear. By Kent O. Foltz, M.D., Professor of Ophthalmology, Otology, Rhinology and Laryngology, in the Eclectic Medical Institute; Consulting Physician to the Seton Hospital, Assistant Editor the Eclectic Medical Journal, Author of a manual on Diseases of the Eye. 12mo, 117 illustrations, 643 pages. Cloth, $3.50. The Scudder Brothers Co., Cincinnati, O.

The author presents an excellent hand-book on the diseases of the nose, throat, and ear, and in addition gives the therapeutics employed by the eclectic physician. The book will be found useful to those who use this method of practice.

The Influence of the Mind on the Body. By Dr. Paul Dubois, Professor in the University of Berne. Translated by L. B. Gallatin. 12mo, cloth, 50 cents, net; by mail, 54 cents. Funk & Wagnalls Company, New York.

This interesting little volume, from the pen of a well-known specialist in nervous disorders, will be read, we are sure, with great interest.

Eczema. A Consideration of Its Course, Diagnosis, and Treatment, embracing many points of practical importance and containing 146 prescriptions, illustrating dosage in local applications. By Samuel Horton Brown, M.D., Assistant Dermatologist, Philadelphia Hospital, etc. 12mo, 105 pages. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1906.

The author has arranged the common knowledge regarding this disease in a convenient form for ready use. Explicit directions are given for the care of a case in a most practical manner. There is an attempt to individualize the cases for treatment, as well as the means to be employed, and this is an advance in the right direction. The general condition of the patient is most properly emphasized and the use of local means is not over-estimated. We heartily commend the book for its purpose.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment in the Various Branches of Medicine and Surgery by leading members of the medical profession throughout the world. Edited by A. O. J. Kelly, A.M., M.D., with able collaborators. Vol. II. Sixteenth series, 1906. Octavo, 302 pages. Price, $2.00. Philadelphia: J. B. Lippincott Company.

As usual, this publication comes to us filled with excellent articles from able contributors and a wealth of expensive illustrations. To be appreciated, it should be examined. The publisher is spending a large amount of money to make the *Clinic* what it should be, and the rapidly increasing circulation shows that its value is being realized by the progressive men in the profession. Send for prospectus and examine the list of articles for yourself.

Medical Jurisprudence, Forensic Medicine and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Toxicology in Cornell University, and Tracy C. Becker, A.B., LL.B., Counsellor at Law, Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo, with able collaboration. Second edition. Sold by subscription only. Muslin, $6.00; law sheep, $7.00. Vol. I. Octavo; 996 pages. New York: William Wood & Company, 1906.

This volume contains: First, an historical Introduction; second, the section on Medical Jurisprudence, or the department of medical law; and, third, the first part of the Thanatological Division of Forensic Medicine, including those subjects in which the object of inquiry is a dead body. The Legal Relations of Physicians and Surgeons, including their acquirement of the right to practice medicine and surgery; their legal duties and obligations; their right to compensation; their

privileges and duties when summoned as witnesses in courts of justice, and their liability for malpractice. The Law of Evidence, concerning confidential communications between Physician and patient. A Synopsis of the Laws of the Several States and Territories of the United States of America, and of Great Britain and Ireland, and of the North American Provinces of Great Britain, relating to the practice of medicine and surgery, from the latest statutes. Synopses of the existing statutes which cover the acquirement of the right to practice medicine and surgery in the United States, Great Britain and Ireland, and the Canadian Provinces. The Legal Status of the Dead Body. The Power and Duties of Coroners and Medical Examiners. Medico-Legal Autopsies. Personal Identity, including the methods used for its determination in the dead and living. Medico-Legal Determination of the Time of Death. Death by Heat and Cold, including insolation in its medico-legal aspects. Death from Starvation in its medico-legal aspect. The various specialties have been treated of by gentlemen who have devoted study and research particularly to the subject on which they write. This important publication consists of four large octavo volumes of from 800 to 1,000 pages each. They are printed in the best manner, and illustrated wherever desirable by line and "half-tone" engravings and chromo-lithographic plates. In paper, press-work, and binding they are examples of the best work. The work, as a whole, may be justly set down as standing in the very front rank of its class, and fully up to date in all respects.

Rats and the Bubonic Plague seem to be logically related, as we have intimated editorially. Early in 1905 the Secretary of State for India appointed an expert committee, headed by Dr. C. J. Martin, director of the Lister Institute, to study the problems connected with the propagation and dissemination of this dreadful scourge. It seems that the infection depends somewhat upon a peculiar species of rat and rat flea. Dr. Martin is reported to hold that "whether plague be primarily a rat disease and epidemics among human beings merely a participation of man in what is scientifically known as the epizoötic, the intimate relationship of the two is undoubted." Infected rats are the most important cause of the epidemic spread of plague. The common (black) Indian rat climbs up and lives in the roofs of huts as well as in "runs." It is always on the move among human beings, and either it, or its parasite, the flea, conveys the plague bacillus to the latter. The bacillus may be absorbed through abrasions, or may be ingested with food; the infected flea undoubtedly carries the bacillus into healthy bodies. Such questions as the habits of rats and their parasites, their breeding seasons, and the existence of subacute or chronic plague among them in the hot months, when the disease is not epidemic in India, are being closely studied by the committee; it is hoped that the existence and extent of the disease throughout the year will thus be determined. The total recorded plague mortality in India was 4,059,800; the deaths from it in 1905 were 950,600, as against 1,144,900 in the preceding year.

CORRESPONDENCE

SCEPTICISM AND CREDULITY.

To the Editor of THE MEDICAL TIMES:

We belong to a hard-headed, sceptic profession in a hard-headed, sceptic age. The man who believes all that he hears, deservedly gets the reputation of being unscientific and gullible, and he is told many lies, simply because of his reputation. Still, we are inclined to believe that, excepting for this innocent malice of imposing all sorts of deceit upon a credulous person, the man who goes through the world doubting what he hears and sees and differing from the general opinion of his fathers and colleagues, will deceive himself more often than the man who takes everything on trust, is deceived by others.

We well recollect the first lesson personally received as to the possible danger of scepticism, in its bearing on medicine. We were invited to a demonstration of the effects of cannabis indica, while a student. After accepting the invitation, we recalled the fact that the date was March 31 and that the seance was set for the next day. After taking pains to be absent, we learned that the experiment really was tried with interesting results.

Credulity assumes various phases, from the acceptance of conclusions based on a logical sequence from plausible premises up to the acceptance of a demonstrable absurdity or pure superstition. The fact that medicine is not a pure science but an application of various sciences, with an admixture of factors not mathematically controllable, renders it impossible to state, a priori, whether a claim is inherently absurd or not. In geometry, it is susceptible of demonstration that the circle cannot be squared. Certain mathematical societies have refused to receive communications dealing with this problem and that of trisecting an angle, by Euclidian methods. Yet, we understand that there has never been a demonstration of the futility of the latter; certain angles are easily trisected, and all by the use of higher curves than the circle.

In the case of medical problems, our attitude of scepticism or credulity most depend upon experience and judgment, and while an individual claim may seem unworthy of credence, the possibility of new discoveries almost invariably justifies an attitude of ultimate credulity. In short, the wise man is a sceptic, as was the doubting Thomas—ready to believe upon what each of us considers tangible evidence.

It has become the fashion to contemn certain medical aspirations. For example, it has been taught that absolute indications or methods of cure of a given disease (pathognomonic signs and specific remedies) are impossibilities. Yet, with certain qualifications, neither are inherently out of the bonds of reason. The fœtal heart beat is absolutely pathognomonic of pregnancy, although it is occasionally missed and sometimes imagined. Ballottement is pathognomonic of the general condition of a solid body suspended in a liquid or, at least, virtually floating and while it occurs in several quite diverse localities and, in any one, may be susceptible of more than one interpretation, it is strictly pathognomonic in the physical sense. So, too, the concensus of physical signs that demonstrate consolidation of lung may be considered as pathognomonic of pneumonia, according to one definition, although not necessarily of the particular form of pneumonia usually

considered typic. Moreover, even an expert may occasionally misinterpret the physical signs.

It is theoretically correct to consider the demonstration of the essential pathologic elements of a disease as pathognomonic—for instance, the specific bacterium of a disease, a blood mount of leucocythæmia, etc. Yet a bacterium may be adventitiously present from contamination or as an essentially harmless foreign body not capable of inducing the disease and it not infrequently happens that a single field of a blood mount may suggest a diagnosis of leucocythæmia, when the average blood picture does not justify such a conclusion.

With better means of securing samples of characteristic foci of disease, analogous to the extraction of a drop of blood for a blood lesion, to the harpooning of muscle for trichinosis, to the detection of tubercle bacilli or gonococci, and to the removal of bits of tumor for microscopic section, essentially pathognomonic signs may be multiplied. So, too, the refinement of pathologic chemistry up to the level of the detection of bile pigments in urine, may very reasonably be expected to reveal pathognomonic signs for many diseases for which, at present, we ridicule the existence of such evidence. For example, there was nothing essentially credulous in accepting the report of the trytophan reaction for cancer, on the strngth of the apparently authoritative preliminary reports. Even the fact that these reports have proved unreliable, does not render it particularly unlikely that some chemic test for the presence of cancer may ultimately be discovered.

In general, it may be said that the trouble in regard to pathognomonic signs is not in the signs themselves, but in jumping to the conclusion that they represent an ultimate cause, not inevitably connected with the immediate condition. For example, albuminuria and glycosuria are pathognomonic in an immediate sense, but not necessarily indicative of any one condition, such as nephritis and diabetes, respectively, which we may have in mind as a typic cause of the local abnormality. In the ultimate analysis, a pathognomonic sign is not a sign at all, but an actual, present, pathologic manifestation.

Just as surely as a certain definite cause produces a definite lesion of the body, we may expect that it may be removed or controlled by a definite remedy—in other words, by a specific. If we apply a definite name, as rheumatism, to a symptom-complex which has no invariable pathology or single causative factor, we cannot rationally expect to find a specific. Neither can we expect that the specific shall always be a drug, or that a mode of treatment genuinely specific shall always be adequate—any more than that every fire can be successfully checked by such applications of water as lie within the power of a fire department—or that the remedy which really jugulates the disease shall also stimulate the patient sufficiently to recover from the effects of the disease. It is no uncommon occurrence for a patient to die of essential weakness, after a perfectly successful operation, without hæmorrhage, anæsthetic complication or sepsis. So, too, a patient may die literally after the cure of pneumonia. Again, especially in the case of diseases due to living organisms, there may be no single chemical or force which can be applied in such degree as to kill the organism without injuring the host.

With the qualifications mentioned, the following means may be considered as strictly specific: Quinine against the malarial parasite, mercury against that of syphilis, salicylates against the diplococcus of rheumatism, and, also, partially, against the accumulation of waste products which cause an entirely different condition of the same name, thymol against certain intestinal parasites, and various well-known vermifuges against the respective gross parasites, antitoxin against diphtheria bacilli. We would confess to being credulous to the extent of considering it by no means hopeless that, for various other parasites, gross or microscopic, there may be discovered, either (1) chemicals in the ordinary sense of the word, or (2) by-products of the germ itself, or (3) vibratory forces, that may prove lethal for the parasite without disabling the host. In the opinion of many competent observers, colloid silver has proved efficacious in aborting many septic processes. Subject to a more careful consideration of the evidence on this point, it may be conceded that a step in advance has been taken toward the killing of septic germs in situ, without operation and subjection of the exposed pus to antiseptics virtually outside the body. If this has really been accomplished, it is not unreasonable to hope that there may, sometime, be perfected a chemical that shall prove lethal to pyogenic bacteria, specifically or generally, without seriously disabling the body cells, as for example occurs, more gradually but certainly—of course, with the provisos mentioned—in the case of malaria and syphilis. So, too, there is hope, by analogy, along either of the other lines mentioned.

A. L. Benedict, A.M., M.D.

Buffalo, August, 1906.

PTYALISM IN PREGNANCY.

To the Editor of The Medical Times:

The following case relating to the function of reproduction serves to refresh former experiences that normal signs of pregnancy by their exaggeration as to intensity or duration, may become pathological; in this instance a symptom which usually is of little significance presents itself in an aggravated form. I refer to ptyalism, a subject which receives but little attention from authors.

Mrs. F. X. ——, aged 29.—Primipara, excellent family history; previous occupation, teacher; was delivered of a stillborn child (at full term), the cause of which she was unable to tell. Moderate salivation was present during the entire pregnancy, but supposing this would terminate with confinement she endured it, but after delivery and checking of the mammary secretion, it continued in an aggravated form, being accompanied by general pruritus, especially at night, of a most tormenting character. The saliva flowed continuously, day and night, quite filling a chamber vessel in twenty-four hours, which I repeatedly witnessed. At this time, eight months after confinement, she called upon me. She was in a condition of extreme malnutrition and debility. Anæmia very pronounced, accompanied with œdema, which together with phlegmasia of the left limb added to her inability to obtain sleep, and with the blanched condition of the entire surfaces, external and internal, she presented an appearance as deplorable as she felt. For this condition was presented full doses of strychnia sulph., alternat-

ing with tr. ferr. chlor. freely. The salivary flow ceased unexpectedly and was soon followed in a comparatively short time by her menstrual function, but the pruritus was not thoroughly under control for some time. At present she is in good health. My only object in recording the case is on account of its infrequency. Perhaps others might suggest a better treatment.

F. H. Rowe, M.D.
4231 Hamilton Ave., Cincinnati, O.

SUPPOSE THE OSTEOPATHY BILL HAD BECOME A LAW.

A bill sanctioning osteopathy passed the senate but failed in the house of New York and came dangerously near becoming a law. There was also under consideration an assembly bill greatly modifying the present status of medical practice by substituting for the "allopathic," homeopathic and eclectic examining boards a single board. The problem of dealing with various opinions as regards therapeutics is solved in the simplest and most unique method imaginable—the candidate is to be examined on all the scientific basic medical studies, such subjects as obstetrics, gynæcology, surgery, etc., and the community will then trust to luck that his therapeutic ability is sufficient.

Under the circumstances, this device seems thoroughly feasible and sensible. The state cannot, on the one hand, demand that even a majority sentiment as to therapeutic matters, which are necessarily matters of opinion, shall be final for every practitioner. On the other hand, if it recognizes, as it now does, two minority schools of practice, it cannot consistently refuse recognition to other minority bodies, each claiming some peculiar tenets as to therapeutics in opposition to the majority of the profession. No matter how absurd a system of medicine may seem to this majority, and whether it rests on a single or multiple basis of treatment and whether its basis is material or more or less supernatural, if the claimants are moderately numerous, well behaved and have a respectable lay clientele, it is obvious that they will ultimately succeed in obtaining legal recognition.

The proposed osteopathic law must nominally correspond in requirements with those in force for the three recognized schools of medicine. If it required obviously less general preparation and less time of professional study, it could not stand a chance of passage. But, by admitting to license those already engaged in osteopathic practice, it follows a recognized precedent and still has a *raison d'être*.

Just as soon as such a law becomes operative, it inevitably will follow that students attracted by specious arguments to the school in question will include an increasing number of well-educated men and the very fact of requiring four years of study of a technical nature, even if the fundamentals of the school in question are as absurd and unscientific as possible, will breed a class of genuinely scientific men. Such men will naturally gravitate toward other scientific medical bodies and will actually be out of harmony with the sect to which they are attached. As the school becomes respectable through the influence of such men, loses the charm of novelty and the attractiveness of a persecuted and martyred sect, it will naturally lost it *raison d'être*. Science breeds individual opinions, but cannot foster exclusive sects, as it is intrinsically catholic and broadening.

Thus, the tendency will be to recognize from time new schools of medicine, popular because they are fads and deriving strength by their very weakness.

The general profession of medicine, especially in a free country, and in any country, so long as it is composed of well-trained minds, must always afford ample scope for true originality, and the only logical and sound legal basis for the medical profession must be one that demands careful training in matters of general education and of indisputable scientific fact, but that leaves the practice and methods of the individual untrammeled.

RETROSPECTIVE THERAPEUTICS

The scientific food of the future was recently discussed by Professor Berthelot, of Paris, who made some rather startling observations: Our milk, eggs and flour will eventually be made in factories; already eggs have been manufactured artificially. By means of alizarin a great agricultural industry was destroyed. This chemical compound is the principle of the madder root, from which were extracted the juices necessary for dying cloth and different materials. The madder root was grown to an enormous extent in Persia, India, and the Levant; whence it spread to Spain, Holland, and the Rhine provinces. It was used very largely in continental Europe, and thirty years ago its annual importation into England amounted to more than six million dollars. The madder fields have, however, now ceased to exist in Europe, by reason of the new and synthetic process of manufacturing alizarin. Pure indigo is now manufactured direct from its elements; the natural product is now almost unknown. Theine and caffeine are obtained from different sources; yet as tea and coffee, they are chemically identical in construction. Theobromine (the essential principle of cocoa) and cocoa itself have been produced in the laboratory. Berthelot has obtained the pure nicotine of the tobacco through the treatment of salomine, a natural glucoside, with hydrogen. Tobacco is but so much vegetable fibre in which nicotine is largely stored. So it is conceivable that the tea plants, the coffee shrubs, the tobacco plants and the cocoa trees may follow the madder root into limbo, states *The Arena*.

Vanilla, naturally the product of the vanilla or tonka bean, can now be produced chemically from artificial vanillin much more cheaply than by the old system; flowers, perfumes, colognes, rose water, vegetable odors, scents of medicinal value—all these things will in the near future be manufactured in the laboratory—so declares the enthusiastic Berthelot. He, moreover, tells us that science is soon going to utilize the nitrogen in the atmosphere as a motive power. But has not some one recently warned us in harrowing terms that our supply of atmospheric nitrogen will, in the course of nature, have disappeared within a million years or so, making animal life impossible? Were it not better, then, to conserve this nitrogen, so that the impending catastrophe may be averted?

Manifestly, all things considered, if we do not very soon take these chemists in hand and suppress them inexorably, they will achieve the disappearance of everything that is useful and beautiful from off the face of dear old Mother Earth.

The commoner microscopic findings in Urinary sediments have been studied during ten years by L. N. Boston, who recently submitted deductions before the Philadelphia Medical Examiners' Association. L. N. Boston knows of no method by means of which alkaline urine may be studied with definite conclusions. Alkaline sediments probably signify acute processes. The stroma or initial mold or hyaline substance of the casts is dissolved when in an alkaline medium. Casts have repeatedly been found in a neutral urine decidedly alkaline, and in this case they disappeared two hours later.

Inorganic sediments, such as uric acid and calcium oxalate, disappear in alkaline urine. *Amorphous inorganic sediments,* such as the urates, readily precipitate in the cold; unless this precipitation takes place at a temperature of 60° to 70° we cannot say the urates are in excess. It is impossible to make deductions from a microscopic study of uric acid. Crystals may be precipitated in urines of low specific gravity and where the actual amount of uric acid excreted is below the normal. Crystals of *calcium oxalate* occur in cases of vesicular pyelitis and calculus; also when an indicanemia is present. These crystals are most common in the urine of high livers who exercise but moderately. *Hematoidin* crystals are oftenest found after traumatism of the kidney; and next in pregnancy they may appear during the course of a renal tuberculosis.

As to organic sediments: Boston has never been able to say positively that *epithelial cells* come from any particular portion of the genito-urinary tract; these cells are probably renal in origin only when they cling to the surface of a renal cast. *Blood corpuscles* have a variety of sources and are the result of pathological conditions; during menstruation, however, they are normal constituents of the urine. The actual formation of *urate casts,* as also whether or no these casts are formed in the urinary tubules, are propositions open to question; their actual clinical significance is not known. They have been found in the course of acute bronchitis; and are not unusual in the urine of persons who show no other evidence of disease. *Hyaline casts* are found most commonly in chronic intestinal nephritis; they may occur also in other forms of chronic and less often in acute nephritis, catarrhal jaundice, carcinoma of the liver, stomach or intestines, and in anæmic conditions. They are not uncommon during the latter months of gestation and in eclampsia; such women generally make complete recoveries and oftentimes do not show casts and albumen at subsequent pregnancies. The urine may contain hyaline casts for from ten to thirty years without pronounced albuminaria or appreciable discomfort. The presence of these casts does not necessarily mean a permanently damaged kidney. Highly *granular casts* are short, thick and common in connection with acute renal disease; yet the exceptions are many. Large finely granular casts may appear in exclampsia and chronic peneuchymatous nephritis; the narrow variety suggests chronic interstitial disease. Boston cites the case of a girl who, for four years up to her eleventh year, voided daily about 20 ounces of albuminous urine, with many hyaline and granular casts. For over two years the urine has been normal in this case, which is an example of many in which renal function has been perfect after subacute and chronic nephritis. *Blood casts* indicate renal hemorrhage, but do not necessarily imply permanent structural change. Epithelial casts evidence an inflammatory process in the kidneys which is of sufficient severity to destroy the epithelial lining of the urinary tubules; they are commonly found with the exanthemata, but do not necessarily imply permanently damaged kidneys. *Mucous cylinders* probably signify the response of the normal kidney to some irritant. *Carbonate of lime* is very infrequently found in alkaline urine in the form of spherules or crossed drumsticks; in urine rendered highly alkaline by ammonium carbonate set free by decomposition of urea, calcium carbonate occurs in small quantity but in an amorphous form. *So-called phosphatemia* is a condition in which the phosphates and carbonates are precipitated before or immediately after the urine is passed; but there is no increase in phosphoric acid. The precipitation is probably produced by the alkalinity of the urine. Phosphatemia characterizes neurasthenia, hypochondria, chronic articular rheumatism and like diseases.

Nutrient enemata are the subject of an important editorial in *The Therapeutic Gazette* (July, '06). Edsall and Miller have found that most of the solids in rectal injections remain practically unabsorbed; it is only the saline constituents which are utilized. A normal salt solution would therefore do as much good by rectal injection as the various nutrient enemata now in common use. Boyd and Robinson (*Scottish Medical and Surgical Journal,* March, 1906) have considered the question: Given even a reduced standard of dietetic requirements, how far does rectal feeding meet these requirements? and have concluded that the most that can be absorbed amounts to 645 calories at a maximum and 240 at a minimum—that it is possible, in other words, to introduce into the body by rectal injection no more than a quarter of the nourishment required to maintain nutrition. This statement holds true only under the most favorable circumstances; in the presence of irritable bowels or diarrhœa the method is of practically no value.

Another important point is that when employed in the treatment of acute gastric diseases, nutrient enemata interfere with complete gastric rest (such as is essential for recovery) by inducing gastric secretion, and yet do not sufficiently nourish the patient. Umber, in a patient upon whom gastrotomy had been performed found that after a rectal injection there was free gastric secretion with a total acidity of 30 and a free hydrochloric acidity equalling 20. If the injection be given, it should be of sufficient bulk to get well up into the colon, since it is thus absorbed much more rapidly than if allowed to remain in the lower bowel. Indeed there is reason to believe that it may occasionally slip past the ileocecal valve, where, of course, it would be of much greater benefit. Boyd and Robinson conclude, however, that an enema cannot greatly help a patient in poor condition. This is an important point. We rather deprecate an excess of zeal which may still further weaken a moribund patient and add to his distress, without benefit to him; this is too often done. The surgeon may wish to bring a sufferer from œsophagral or pyloric obstruction into a condition of improved nutrition before operation; this it seems cannot be produced by means of rectal injections. Such patients may gain weight by this means, but probably by the absorption of water from the intestine. And

after severe hemorrhage or persistent vomiting, as in pyloric obstruction or gastric ulcer, the tissues are suffering greatly from a deficiency of water; to this fact the increase in weight is due. If it is concluded that rectal feeding is essential the carbohydrates and fats had best be employed, rather than the inert proteids. With regard to carbohydrates: Pure dextrin has been used with excellent results, being well absorbed and producing no ill effects, such as bowel irritation or alimentary glycosuria. The disadvantages of fat in rectal feeding seem to be the wide difference of absorptine powers in different individuals; when well absorbed it should prove most valuable, but the absorption can not be foreseen in any given case. The yolk of egg is the best form; if prepared fat is used it should be a fine emulsion of a fat of low melting-point. Pure olive oil may be used, a small quantity being soaponified and used to emulsify the whole. A good formula is: The yolks of two eggs, 30 grammes (about an ounce) pure dextrose, 50 grammes (℥1¼) common salt and pancreatized milk (Fairchild) to make 300 c. c. (℥x). The method of administration and the size of the enema are both important points. Nutrient enemata should never be administered with a syringe. Substances rapidly injected into the bowel will as promptly be returned. The enema should be very slowly siphoned in by means of a soft rubber catheter and a small-sized filter funnel; if there be bowel irritability a small dose of morphine should be added to the injection. The daily cleansing of the bowel with a saline injection is, of course, an absolute necessity. The amount of the nutrient injection commonly used is from 4 to 6 ounces—probably too small. If the enema be given slowly, 8 to 10 ounces can be retained; and the patient absorbs at least sufficient water and does not suffer from thirst, a prominent difficulty when small injections are used.

Autointoxication is probably far more frequent than is generally considered to be the case; no doubt many a perplexing syndrome could be explained upon this basis. There is clinically a group of cases in which the kidney has become reduced in size, the cortex being involved in the reduction; in many cases the blood pressure is raised, and then "uræmic symptoms" are spoken of (H. B. Shaw, *Lancet*, May 26, '06). The kidney tissues, especially the cortex, can, when fresh, cause a rise of blood-pressure; the actual substance responsible for this effect has not been isolated. It is not crystalline, but of a colloid nature and cannot be dialyzed; it is very labile and seems to be destroyed when the kidney substance has lost its freshness. Maintained hypertension may, therefore, be due to the entrance of kidney substance into the circulation; here may also be the explanation of the raised blood pressure which occurs so often in uræmia. No doubt the cerebral manifestations of uræmia are due to arterial spasms; the toxic substance derived from the kidney acting upon the peripheral centres of the vasomotor nerves. (The cerebral arteries possess, of course, a nervous supply.) The effect of the kidney substance may be lost when the organ has undergone autolysis. The latter is an accepted physiological agency by which the chemical changes of the body are carried on. Autolysis takes place when tissues are cut off from the circulation. If the blood supply to various organs is cut off by arterial disease the organs must eventually atrophy by a process of autolysis. This process is allied to digestion and is due to the existence of intracellular proteolytic enzymes. No derivative of autolysis is known which can cause a rise of blood pressure. On this account kidney-substance can alone be the cause of the rise of blood pressure met with in renal disease; it must enter the circulation before autolysis has occurred, during the period of maintained vitality. All tissues which have undergone the initial process of autolysis may yield such substances as proteases, histones, nucleinic acid and choline; thus they can yield to the circulation material which is capable of exerting a fall in the blood pressure. The action of kidney substance upon the circulation, resulting in a rise in pressure, explains the common occurrence of hypertrophy of the middle coat of the arteries.

The prognosis in insanity is better when there is a single cause than where there are several (Jones, *Brit. Med. Jour.*). There is always some mental weakness after an attack, nor is there any such happy issue as a complete and permanent recovery. Tuberculosis is one of the most frequent causes of death in insanity, being responsible for more than 16 per cent. of deaths in institutions for the insane. Certain types of insanity are incurable from the start; such are the forms accompanying general paralysis, cerebral tumors, advanced tuberculosis, malignant disease, diabetes mellitus; diseases necessarily fatal and attacking the great internal organs; epilepsy, paralysis from hemorrhage, embolus or thrombus; paranoia or chronic delusional insanity; alcoholic insanity with hereditary predisposition; senile dementia; and all kinds of congenital mental defects. General paralysis is peculiarly unyielding, though some forms are more chronic than others (Dana believes that some cases may be cured if treated very early). Acute delirious menia is most fatal; it is a condition fortunately rare. The prognosis is in general terms better in cases of insanity where there is a single cause than where there are several causes. An acute inflammation may cause the recovery of a chronic case. Attacks of long, slow incubation are of unfavorable prognosis. Certain signs are favorable to recovery; such are: Normal sleep; a return to the normal mean average bodily weight; a return of the natural facial expression and appearance; the revival of natural affections; the patient's interest in his personal appearance; the consciousness and recollection of having been ill.

The Automobile as a Financial Leveler.—Did it ever occur to any of our readers that the automobile is destined to play an important part in offsetting the tendency toward the accumulation of great wealth in a few hands? We attempt no statistical study, but offer the suggestion that the wealthy class has never had a toy quite as expensive, widely used and dangerous as the automobile. It is less than ten years since the automobile was a matter of forgotten experimental history and a dream of the inventor. To-day there is scarcely a good-sized city that has not salesrooms, garages and repair shops, manufacturies and private stables, representing millions of dollars distributed in the form of liberal salaries and the highest wages for skilled labor. These millions are a direct levy upon the wealthy class, in the interests of men who would otherwise be earning much smaller salaries and wages. The good roads movement, which also, in the long run, and somewhat indirectly, tends to equalize wealth, de-

pends largely upon the interest in motoring. Aside from these economic tendencies of the automobile, we are inclined to believe that fatal accidents will, in the course of another decade, have an appreciable influence simply by subjecting large estates to inheritance taxes and to assessment for ordinary taxation at something like their true valuation. The death of a rich man is by no means, in and of itself, a sociologic benefit, even though it distributes a large single estate among a number of heirs and tends to check the aggregation of industry into a monopoly. To a very large degree, an enormous fortune, made by the enterprise of a hard-working, ambitious man, creates wealth for the entire community. Very little real wealth is represented by cash and very few large fortunes are, in any true sense, amassed by taking money from the poor. Still, there has developed, even in America, a considerable class of unproductive, fast-living, parasitic men and women, whose value to the community is a negative quantity. The sooner the wealth of this class is distributed, the better for the community and it would seem, from the press reports of automobile accidents, with due regard to distortion of facts by the yellow papers and the charitable evasions of more conservative sheets, that the automobile is playing a considerable part in shortening the lives of the undesirable rich and in causing their property to be distributed. Aside from the rather direct sociologic benefit of breaking up one large estate into a number of smaller ones, the probate court is one of the most efficient means which assessors have of estimating the value of taxable property, not in the form of real estate.

Phagocytosis and Opsonins.—This important subject is discussed by Hektoen (*Jour. A. M. A.*, May 12, '06). Phagocytosis of many bacterial and other cells by the leucocytes is dependent on special substances, normal and immune, which become attached to the cells involved and so change them in some manner that they are taken up readily by polynuclear leucocytes in vitro. Wright and Douglas have shown the presence of such substances (which they have called opsonins) in the blood and in other fluids. It has been found that the variable factor is the serum and not the leucocytes. The sera of the higher animals normally contain opsonin for many different bacteria. Normal human serum contains opsonin for staphylo-, strepto-, meningo-, pneumo-, and gonococci; the influenza, diphtheria, anthrax, comma and the pest bacilli; and probably many other pathogenic and non-pathogenic bacteria. It is not yet determined whether this wide range of opsonin action is dependent wholly on a common opsonin or on several more or less specific opsonins. It has been shown that the blood of certain animals immunized with blood serum contains a substance which, by acting on blood corpuscles, renders them subject to phagocytosis by leucocytes. Immune opsonins act primarily on the bodies against which the animals have been immunized. Phagocytosis is essentially amœrboid movement, by means of which the object consumed is enveloped. The action of the opsonins consists in so changing bacteria, and other cells, that by chemical, electrical, or mechanical, means, the latter diminish the surface tension of leucocytes, and thus bring about phagocytosis. Again, specific anti-opsonins are produced under certain circumstances, which may diminish or inhibit normal phagocytosis. The important question lies in the value of the opsonic index in the successful treatment of infections by means of the inoculation of bacterial vaccines. These vaccines should be administered when the opsonic is high and in properly adjusted and interspaced doses—to maintain the antibacterial power of the blood at a high level by controlling the effects by means of the opsonin index. Hektoen states as follows the reason why opsonin action of normal and immune is for the present to be regarded as connected with distinct bodies. Normal serum may possess lytic power, but not opsonin, and vice versa; immunization may give rise to opsonic substances, but not to lytic or agglutinating; heat may destroy opsonic power, while the lytic amboceptors remain intact, and vice versa.

The Bronchial Glands and Pulmonary Tuberculosis.—F. Weleminsky emphasizes the now fairly established view that these glands stand in a pathogenic relation to pulmonary consumption. He infected guinea-pigs with tuberculosis at various points and later examined the bronchial glands. He found that the infection never occurred through the blood, but always by way of the lymphatics. (Here Weleminsky is probably in error; many other observers have correctly claimed that the blood channels may ab initio convey the infection.) The bronchial glands seem to be the terminal reservoir not only for the lung lymph, but also for that from the rest of the body, before it is poured into the circulation. When animals were inoculated in the peritoneum, rectum or subcutaneously in the groin, it seemed at first as if the infection followed an arbitrary, erratic course; but the discovery of hidden glands showed the regular sequence of the progress of the infection, without an exception, in Weleminsky's last 300 experiments. The bronchial glands are in some sort a lymphatic heart, in which the lymphatics from all sides discharge their contents, including tubercle bacilli, from remote points of entry.

The Iodides are alteratives, declares J. Burnet (*Lancet,* May 5, '06). They have long been used against syphilis and scrofula; and, more recently, gout, rheumatism, aneurism and arteriosclerosis. The iodides were formerly supposed to act by dilating arterioles and diminishing blood pressure, but they have no effect on the blood pressure or pulse, although they promote coagulation of the blood. Iodipin or iodized sesame oil is most effective injected under the skin; there is no gastric disturbance and the iodine is slowly set free by oxidation. This drug relieves arteriosclerosis by diminishing the uric acid dissolved in the blood and thus relaxes the arterioles and relieves aneurism, if syphilitic, by removing pathological effusion and counteracting the poison. In angina pectoris a drachm must be given daily for months. It is most useful in chronic pulmonary diseases, especially fibrosis and emphysema, relieving dyspnœa and liquefying secretion; here it is best given in 15 grain doses at bedtime. Ten grain doses every two hours are appropriate for bronchial asthma, relieving spasms and freeing the blood from uric acid. Its autoxic properties and eliminative action are excellent in syphilis, especially of the nervous system and when headache is pronounced. In tabes ℥ii have been given daily with excellent results. It has also been given successfully in cases of malaria, puerperal fever and erysipelas. The iodide of potash is indicated against chronic rheumatism, neuralgia, lumbago and sciatica; here it is best combined with the

salicylates. In cases of effusion, especially from interstitial nephritis or cirrhosis, the iodides are often of service. In lead or mercurial poisoning they remove the metal from the tissues and cause its excretion. In simple goitre they are very useful if employed early; in exophthalmos they are of no use whatever. The sodium salt is less depressing than the potassium salt.

The Causation of Acute Rheumatism.—L. F. Frissell (*Med. Rec.*, May 12, '06) believes that we must look beyond the common joint affection for a clear idea of this protean disease, which attacks also other tissues —the skin, the pleura, the heart. Granted a point of entry, probably the tonsil (tonsillitis is very frequent in rheumatism), the various conditions vaguely called rheumatic, as well as the typical acute articular attack, seem best explained upon the basis of a blood infection. Assuming such an origin, the localization of the symptoms is readily accounted for by the bacterial embolus or local toxic action. In regard to the nature of the specific organism Frissell presents five possibilities: An infection caused by the ordinary streptococci or staphylococci, with their virulence in some way decreased; infection by a specific bacillus, a mixed infection with bacilli and cocci; an infection with the specific coccus; an infection caused by one of a group of closely allied organisms, probably diplo or streptococci, which cause various grades of arthritis trouble. This last theory, which Frissell favors, reconciles the belief in the specfic coccus with the belief in the attenuated pus coccus as the causal agent.

The wonderful capacity of the brain for vicarious working is pointed out by Anton (*Monapebr. für. Psych. u. Neurol.*, Jan., '06). Oftentimes after great loss of brain substance one is unable, when many years have transpired, to detect any functional disturbance. The nervous system of lowly organisms can regenerate parts, but this power is lost in the more highly organized. However, there is in the latter a wonderful power of adaptation, in that if a part be lost another part will take up its function. Case: A highly cultivated gentleman died in the possession of all his faculties; his brain was found after death to contain numerous white softenings due to arterio-sclerosis. Again, Ewald operated upon a dog, removing one labyrinth, with recovery; then the other labyrinth was removed, with recovery; then one motor cortex for fore and hind limbs was removed, with recovery. Finally the motor cortex of the opposite side was removed, and this operation was followed by death. This experiment proved that the sensorio-motor cortex could take up the function of the labyrinths in addition to its own; and when both motor cortices were removed, not only were their normal functions lost to the animal, but also those functions which they had taken up after destruction of the labyrinths. Lucian's experiments showed the same substitution of function. Among human beings the educated deaf, dumb and blind, such as the Misses Keller and Bridgman, are examples *à propos*. Anton finds that the part taking up the lost function never performs it quite so efficiently as did the original part; and it becomes much more easily tired.

The Etiology of Tumors.—These growths never occur in perfectly normal tissues. (A. H. Levings, *Clin. Rev.*, June, 06). The dermoids and teratomata are usually congenital and are due to inclusion of one or more of the germ layers. The cysts are due to a variety of causes—obstruction of a duct or of an asinus of a gland; stimulation of epithelial nests or vestiges; inflammations; and parasites. Solid epithelial tumors also occur in epithelial nests as a result of stimulation or irritation. The solid connective tissue tumors are often caused by direct injury, or irritation, or chronic inflammation. The papillomata are the result of irritation; the granulomata of the irritation incident to the presence of germs within the tissues. The growths are always made up of connective or granulation tissue. While injury and irritation seem to be exclusive factors, there is evidently something more potent than this. Whatever this energy or organism may be, it must lie within the cells and be capable of exerting its influence upon both epithelial and connective tissue cells. This influence differs markedly from that of the organism of the granulomata. Possibly this misplaced energy acts in two ways: By changing the relationship and removing the restraining influence of the adjacent cells; and by inciting the cells implicated to proliferate superabundantly. This view expresses in substance the theory of Rebbert.

Read the canned food labels advises Dr. Olsen, of the Brooklyn Polytechnic Institute, who declares that few women take the trouble to examine the cans, and that "poison" might be written in large letters and still escape attention. Ninety per cent. of the preserves sold in the market are of the fake apple pulp variety, in which this constituent and chemical flavors are substituted for fruit. Many a jelly cannot claim a currant bush as an ancestor. Many a guava jelly proves on examination an utter fraud, while the taste carries no suspicion. Many canned goods, especially corn, are preserved with boric and benzoic acid and formaldehyde; such products spoil quickly. Dr. Olsen is, however, one of the conservative leaders of the pure food campaign. He finds that some of the preservatives are not in themselves seriously harmful; it might be possible to drink all of the boric acid in a can of fruit without sustaining any injury. But here lies the real danger. The manufacturer using a deadly poison would come directly under the ban of the penal code, while the housekeeper would not allow it in her kitchen. Preserved foods are less digestive and less nutritious than natural ones, neither the flavor nor the odor is fresh, and these two elements enter largely into nourishing food. Preservatives often make diseased food marketable; eggs preserved with boric acid will keep eighteen months, while formaldehyde will remove all odor from those already spoiled.

The psychoses of heart disease are divided by House (*Jour. A. M. A.*), with regard to etiology, into: Local sensations usually not painful, as palpitation, irregularity, tachycardia, bradycardia or excessive loudness; decided pain, as in angina, endo or pericarditis; circulatory disturbance, as vasomotor constrictions or feebleness of heart action with cyanosis; secondary cerebral lesions, as from embolus, or œdemas and effusions from incompetency. House would make the following classification according to the symptoms: States of fear, apprehension and panic, alternating with depression and irritability, without active delusions or hallucinations; delusions founded on misinterpretations of local cardiac phenomena, such as pain; active hallucinations from circulatory disturbances involving sensory organs; dementia from secondary lesions in the brain.

Neurasthenia and Excessive Lights.—Woodruff's observations (*N. Y. Med. Rec.*, Dec. 23, '05) are based on the physical law that the effect of the short waves is always destructive and never constructive. Nature has promoted the various races with a degree of pigmentation suitable for the average intensity of light in their respective native regions. Blondes are indegenous in the dark, gloomy northern countries; brunettes inhabit almost universally the tropical latitudes. The latter type when it migrates in the course of time to the more sunny regions tends to become extinct. The excess of sunlight to which the people of many parts of this country are exposed is distinctly injurious and is a potent cause of neurasthenia—a condition more prevalent among blondes than among brunettes, worse in cities than in the country, and either vastly benefited or cured by removal to dark, cloudy climates.

Jacksonian Epilepsy is exhaustively discussed by C. K. Mills (*Boston Med. and Surg. Jour.*, April 26, '06). This form of spasm has been an important or deciding symptom in successfully fixing the site for operation in the case of a cerebral tumor. Mills has had a number of cases of cysts of the motor region, in some of which unilateral convulsions or monospasms have been present, these evidently being due to the unstable condition of the cortex surrounding the cyst. It has been possible to expose the cyst, cut away its roof and so lessen the frequency and severity of the attacks. He gives several histories illustrating the importance of Jacksonian spasms in gross lesions of the cortex, especially in tumor and localized meningitis; in these cases other evidences of gross lesion in addition to the spasm were present. Such were monoplegia or hemiparesis with exaggerated reflexes on the side of the body in which the localized spasm occurred. With regard to symptomatology: Tumors situated in other parts of the brain than the motor cortex may cause Jacksonian epilepsy; other lesions besides tumors situated in the motor cortex may cause this spasm, which may occur also in toxic and other disease in which no demonstrable focal lesions are present; a spasm closely counterparting the Jacksonian type may be observed as a reflex or a hysterical disorder; or it may be simply an integral part of the entire expression of a case of idiopathic epilepsy. Jacksonian epilepsy, apparently, of the motor area type, may be observed with cerebellar tremors. The gross lesions of the motor area which cause monospasm or hemispasm counterparting that produced by tumors are depressed fracture, localized meningitis, meningeal or cortical hemorrhage, local hemorrhagic eucephalitis or cortical polioencephalitis and focal necrosis or embolism, including cases associated with general arteriosclerosis.

Stiff and painful shoulders are considered by E. A. Codman, who presents a series of excellent photographs (*Bost. Med. and Surg. Jour.*, May 31, '06). A characteristic complaint in such patients is the inability to put the arm to the nape of the neck or behind the small of the back. Women cannot "do up" their back hair; men cannot button the back of their suspenders. Often rheumatism, fibrous ankylosis, deltoid paralysis or perianthritis are erroneously diagnosed in such cases. Codman lays stress upon abnormality of the subacronial or subdeltoid bursa, which is indispensable in abduction and rotation of the arm. This bursa may be inflamed as a result of trauma; fixation, as after certain fractures and operations on the breast, hand and arm, and sepsis. Most minor lesions of the shoulder joint involve the bursa; few involve the shoulder joint. Acute cases must be treated by relieving pain, physiological rest during the inflammatory stage; and later, the prevention of adhesion of the inflamed surfaces. Codman has invented a special splint, which he describes for chronic cases. This splint effectually prevents the reformation of adhesions, holding the arm, as it does, in abduction and external rotation, thus bringing raw surfaces opposite healthy ones.

Stammering is treated by Kenyon (*Med. Rec.*, June 16, '06) first by educating the patient so that he may consciously learn how to manage his speech apparatus; second, by discipline, so that he may overcome a firmly rooted and stubborn habit; by correction of the general organic disability and of peripheral abnormalities, in order that the delicate mechanism of speech may not be physically interfered with. The patient must at once study normal speech from the standpoint of the technique of its production; and the knowledge acquired must at once be put into practice. Speech is now no longer automatic, but becomes a function governed in detail by the consciousness and the will. The patient must gain control of his speech mechanism and direct it in detail. Even then the subconscious nervous structures must be held well in hand until they can be entrusted to assume control. This defect should be corrected early; it is essential that both instructor and patient be firm of purpose.

Pruritus Ani afflicts the male in 95 per cent. of cases (L. H. Adler, *Am. Med.*). The patients are nearly always more or less neurotic and of a bilious temperament. All exciting causes must be removed, and the patient's habits of life regulated before local treatment is attempted. Every day ʒi to ʒijss of the following is injected into the rectum: ℞. Fl. ext. hamamelis, ʒi; fl. ext. ergot, ʒij; fl. ext. hydrastis, et tinct. benzoin comp., aa ʒij. Upon the first visit, if the perianal skin is dry and tough, the entire surface should be painted with a concentrated solution of silver nitrate (gr. 960—ʒi aquæ). This may be repeated at intervals of a few days to restore the skin to normal. After this is accomplished the full strength citrin. ointment is to be applied daily for the first two or three weeks and thereafter on alternate days or twice a week. This treatment may have to extend over six months or even longer.

Scarlet fever infection was conveyed in an unusual case cited by Poynton (*Brit. Med. Jour.*) A child was taken sick with scarlet fever. When he desquamated whole casts of his fingers came off. These were saved in a box. A year later, after the family had moved to another town, the box was opened and the casts shown with pride to a family who were visiting. A few days later three of the visitors developed scarlet fever and one died. It is said that the present system of medical school inspection in New York City had its origin in a similar incident. A school child who had had scarlet fevor returned to school while desquamating. She generously distributed casts from her arms and fingers among her fellows, with the result that an epidemic of scarlet fever developed in the community. This led to stringent inspection by the Department of Health.

MISCELLANY

The prophylaxis of yellow fever requires four precautions: To prevent the propagation of *stegomyia;* to prevent this form of mosquito from getting access to yellow fever victims; to shield healthy persons from *stegomyia* that have been infected; to kill every mosquito that has found a lodgment in a house where there has been a case of fever.

Dr. Masuno, a prominent Portugese oculist, suddenly became unconscious while reading a paper before the section on ophthalmology at the Lisbon Congress. He died while comatose. He was independent of practice and devoted himself to the treatment of the poor, for whom he had founded a free private hospital and training school for the blind.

Tuberculosis of the Eye is comparatively rare (W. H. Wilder, *Ill. State Med. Jour.*). Probably many diseases of the cornea, iris and ciliary body, in which gross tubercular lesions do not develop, are excited by the toxins of the bacillus. Whether tuberculin has the same diagnostic value in these conditions as in the gross lesions has not been determined; its use is safe and in large measure reliable; no doubt it is a valuable therapeutic means.

Adults eat far too much declares Osler, in "Counsels and Advice," the book which was edited by Dr. C. L. B. Camac. "While temperance in the matter of alcoholic drinks is becoming characteristic of Americans, intemperance in the amount of food taken is almost the rule. Physicians are beginning to recognize that early degenerations, particularly of the arteries and the kidneys, leading to Bright's disease, which were formerly attributed to alcohol, are due in large part to too much food."

"Would you care to paralyze your leucocytes?" is reported to be Metchinkoff's form of invitation to partake of alcoholic beverages. This great scientist is, as is well known, a profound student of the white blood cell and of its phagocytic power. The leucocyte normally eats up the microbe which would otherwise destroy the man. Metchinkoff has discovered that a rabbit, after taking alcoholic drink, cannot be made immune to anthrax; the leucocytes have evidently by this means been paralyzed.

The novelist's idea of a doctor is thus given by Julian Street in *McClure's:* "The doctor was not a real doctor; we bestowed the title upon him because of his professional air and his sagacity. We all agreed that the doctor knew nearly everything. He was familiar with the appendicitis operation and could find McBurney's point unaided; he knew the drama from its first inception to last night's productions; he had his own theories on yacht building, on socialism, and on the Great Beyond, and he had demonstrated most of them." Quite neat, this last observation; how had the doctor demonstrated his theory of the Great Beyond? By hastening anybody's advent there?

Puerperal infection of a peculiar sort is reported by Greene (*N. Y. Med. Jour.*, June 16, '06). The husband, who had an amateur interest in medicine, was in the habit of making almost daily vaginal examinations in order to note the course of the pregnancy. His business was the handling of hides. The labor was perfectly normal; but two days later the patient had a chill which was followed by a dreadful puerperal fever. She eventually recovered, but was quite blind of one eye and partially so in the other from an intercurrent attack of optic neuritis. Greene is convinced that the infection was by means of the germs which were conveyed from the filthy hides by the husband.

Caterpillar Fever is contracted by many in rural districts (*London Mail*). There is often an epidemic of "caterpillar rash," characterized by intense itching of the palms and sometimes of the face, with vesicles which, when they occur about the eyes, obstruct vision. Prophylaxis requires that caterpillars be left severely alone. The "palmar worm," for instance, the hairy caterpillar of the gold-tail moth, one of the commonest and most beautiful objects in the country at midsummer, passes from hand to hand. It leaves a few of its loosely attached hairs upon the palm; and an urticaria results, in the opinion of English rural physicians. Many other hairy caterpillars produce like effects.

An extemporized aspirator is described by the *Medical Review of Reviews.* A 5-pint bottle is fitted with a rubber cork, through which passes a glass tube to which is attached an aspirating needle. When wanted for use, ʒiii of alcohol are poured into the bottle, which is then tilted and rotated so that the fluid will wet its every portion; the excess is then poured out. The alcohol is then ignited and, as the flame reaches the bottom of the bottle, the cork is inserted and the tube is clamped with a pair of hæmostatic forceps. Thus is furnished sufficient vacuum to aspirate any safe amount of fluid. The entire cost of this efficient apparatus will not exceed half a dollar. It is in use in the New York Hospital.

That the sleeping sickness is easily contracted by Europeans is illustrated by the case of Lieut. Tulloch, of the Queen Alexander Military Hospital, who died recently while investigating the nature of the disease in Uganda, whither he had been sent by the Colonial Office as a member of the Commission which is seeking some means of cure or prevention. Lieut. Tulloch was not inoculated by the direct bite of the tsetse fly, but by having cut his hand with an infected knife. From the first he declared his case to be hopeless; indeed—probably from the very manner of the inoculation—it was without parallel with regard to he rapidity of its course. Lieut. Tulloch was the youngest son of Deputy Surgeon General John Tulloch, of the English Medical Staff, who died a few months ago, while his son was on his way home, invalided.

The therapeutic value of sarsaparilla was formerly held to be high; it was the favorite vehicle for the administration of the iodides in syphilis. Of recent years, however, sarsaparilla has fallen into disuse. However, several communications concerning the value of sarsaparilla as an alterative have recently appeared. Lemon gets excellent results by the use of Zittman's decoction, which contains sarsaparilla, fennel, anise, sassafras, mezereum, liquorice, and guaiac; this mixture is largely used in the continental resorts, against tertiary syphilides. Allbutt strongly recommends sarsaparilla in the treatment of syphilitic cachexia; he uses the syrup of sarsaparilla, which contains only the decoction with some white sugar, giving 4 ounces t. i. d. By this means several pounds a week were gained; whereas other cases which received iodide of potash and iron failed to gain nearly so much.

THE SEX CYCLE OF THE GERM PLASM.

Its Relation to Sex Determination.

BY THOMAS E. REED, M.D.

PART II.

DARWIN says in respect to the bearing natural selection may be considered to have on this question: "Suppose the case of a species, which from unknown causes produces an excess of one sex, say males—an excess of males being superfluous and useless. By natural selection could the sexes be equalized? We may feel sure from the fact that characteristics being variable certain pairs would produce a somewhat less excess of males over females than would other pairs. The former supposing the actual number of offspring to remain constant would necessarily produce more females and would therefore be more productive. On the doctrine of chances the greater number of the offspring of the more productive would survive and these would inherit a tendency to procreate fewer males and more females. Thus a tendency toward equalization would be brought about." He apparently does not advance this hypothesis very confidently, and later he evidently felt it would require considerable modification, for he says: "I formerly thought that when the tendency to produce both sexes in equal numbers was advantageous to a species it would follow from natural selection, but I now see that the whole problem is so intricate that it is best to leave its solution to the future."*

Before reviewing Starkweather's hypothesis, which will be discussed in greater detail, attention will be called to a sex theory which a few years ago attracted considerable notice. The late Prof. Schenck held that in order to produce male offspring it is necessary to alter the diet of the mother previous to conception, selecting nitrogenous substances and excluding carbohydrates. The urine should be examined for sugar by a series of very delicate tests. When all sugar has disappeared impregnation should be allowed, but the diet should be continued for about eight weeks afterward, when, he says, it may be gradually altered. If a boy is desired the urine must be entirely freed from even the slightest trace of sugar before conception. He says: "The condition of a woman in a well regulated married state, when, as we will suppose, five or six girls are born, must be supposed to be of the kind that departs more or less from the normal." He also remarks that no influence can be exerted if female offspring are desired. On reading Prof. Schenck's book it immediately occurs to one that if these contentions are true a woman afflicted with diabetes mellitus, in which disease varying amounts of sugar are constantly being excreted, would necessarily always give birth to girls. This is not found to be the case. The author, however, anticipating this objection, advances this rather unsatisfactory explanation; he says: "Notwithstanding the high percentage of sugar excreted in the case of a woman suffering from diabetes, female offspring do not necessarily appear, because in the slighter cases of this disease the normal metabolism can be considerably improved." Without depreciating in the slightest the patient investigation evidently given by Dr. Schenck to this subject, we feel that this method considered merely as a hypothesis is about the least plausible of any of those we have met with. On the other hand we do not believe that the clinical evidence he presents is extended enough to justify his conclusions.

Dr. Napheys held, with M. Thury, whose name is most prominently connected with this view, that the time of conception with respect to the menstrual month is an important factor in the determination of sex. He states that the queen bee lays female eggs first, hens are also said to do this, although Albini's extensive experiments with poultry would hardly seem to justify this conclusion.* The method was also supported by the authority of Düsing. Some stockbreeders claim to have had considerable success in following this rule. Breeding mares late in heat when male colts are desired. Schroder has investigated this, however, and affirms that he has never been able to confirm M. Thury's theory with the human subject.

The following somewhat hazy hypothesis has lately been advanced by a French writer on the subject.† What is intelligible in the theory seems to partake largely of Starkweather.

He believes the ova and spermatozoa express the extremes of fine cellular differences. They typify in themselves the psychological and somatic differences between the adult male and female organism. He also holds that there is an antithesis between the germ cell born by an individual and that individual. In brief the spermatozoa are essentially female, and ova male, thus each adult organism typifies the primitive hermaphroditic unity of sex, which he postulates. This being true, he believes that if a relatively feeble ovum be fertilized by a vigorous spermatozoön the qualities of the spermatozoön will be dominent, the offspring resembling the father, but of the female sex. Sons are the result of vigorous ova fertilized by feeble spermatozoa. He holds that the somatic cells must balance the sex cells and therefore they will be female and the offspring will be male but resembling the mother.

This résumé of a few of the principle sex theories will be concluded with a brief consideration of the Starkweather hypothesis, which is perhaps one of the most plausible of the many theories that have been advanced.*

The law which he believes he has discovered he briefly sums up in the following words: "Sex is determined by what I shall designate as the superior parent, also the superior parent produces the opposite sex."

While there may be much difference between two individuals of the opposite sex, he holds that sexes are equal in the aggregate, male equaling female, as true physiological equivalents. He further says that, with reference to individuals, "superiority" means "anything which tends to increase functional energy in any part of the system," and that "the superior germ rules, as superiority is sure to do wherever it be placed, and outbalancing the other, turns the scale of sex, but subject to the unvarying law of opposites which we conceive to be the principle of universal equilibrium, produces its opposite, hence if the mother be more highly endowed, or even but temporarily more favorably conditioned than the father, the offspring will be of the male sex and endowed with more of the mother than the father. The converse of this will of course obtain,

* "Descent of Man," Chapter VIII.

* *Centralblatt fuer Medicinische Wissenschaft*, 1868.

† "Qu' est-ce Qui Determine Le Sexe?" A Van Luit. Paris: 1902. Bailliere et Fils.

*"The Law of Sex," George B. Starkweather, London, 1883.

and a superior father on the same principle will beget a daughter. The theory may appropriately be designated that of 'superior opposites.'"

It will be readily seen that this hypothesis accounts remarkably well for the general equality in numbers between the sexes. A superior father, young, and the chances for life good, produces daughters, but as he grows older, passing the prime of life, and his wife, whom we will assume is some years younger than he, as is often the case, approaches her prime, she rather than he stamps the sex of the children, producing sons. Anything which might throw one sex of a species below par and thus threaten a disturbance of the balance is compensated for by the consequent ability of the superior parents to stamp the future offspring with the opposite sex. Leaving all secondary sexual characters out of consideration it will be conceded that the male or female of a mated pair run equal chances of possessing those qualities which confer superiority.

Starkweather further says: "That there exists a law of equilbrium in regard to sex as in all of nature's operations is a fact upon which I have insisted. . . . It is no mere assumption that there is a self-adjusting principle connected with sex, for it is a fact as visible as it is indispensible and immutable. Its workings are to be seen on every hand as easily as the vivifying effects of the sun's rays upon the face of nature. It must be so or the sexes would not show the invariable tendency toward equilibrium throughout the world as they now do." After a discussion of numerous sex theories he says that he soon learned to test the truth of any of these theories by ascertaining whether or not they contained any principle of balance. It will not be necessary to follow Starkweather through the detailed enumeration he makes of the qualities he considers superior and inferior. He lays stress on cerebral development, nervous energy, will, temperament, physical development, and nutrition; intelligence, facial features, etc.

The first objection to be urged against this theory is the one already stated as applying to many others; that is, so many of the factors are relatively very indefinite. Hence there would always be room for considerable difference of opinion as to what would constitute superiority in any particular instance. In man we should be able to recognize superiority and inferiority more easily than in any other animal, because we are more familiar with the factors involved, but when we take any particular mated pair we find that in a great majority of instances any factor denoting superiority, for instance in the male is offset by one denoting inferiority; or superior traits in the female are met or contrabalanced by other superior traits in the male. Had the originator of this theory taken one or two factors and been content to rest his hypothesis on these, there would not have been so much room for a difference of opinion, but he evidently found early in his inquiry that no limited number would prove sufficient; he was therefore obliged to greatly enlarge his list of determinants running the whole scale from the lowest physical to the highest intellectual qualities. Now a state of things is reached which renders it easy for any upholder of his theory to find in any particular case plenty of evidence for it, but there is also the opportunity for any one so inclined to dispute almost every argument adduced.

The second objection to this hypothesis is one based on simple observation. Almost every one can note among their acquaintances families where girls or boys alone have been the rule. Then perhaps a child of the opposite sex makes its appearance without any obvious change of superiority between the father and mother. There might be room for a difference of opinion as to which of the two parents was originally the superior, but there cannot be any room for difference of opinion as to the fact that there has been to all appearances no superiority alternation.

Starkweather holds that his theory will apply to the whole animal kingdom as well as to man. Here he must encounter another objection, for in many species one sex is immensely and constantly superior to the other. In the course of a few years a stallion may be bred to a great number of mares. He is in all probability a superior animal to every one of these. He is in fact selected as a sire because of his superiority in every respect to the ordinary run of horses, yet the sex of the offspring varies. Many other examples of this might be cited, as in the *Arachnoideans* where the females are often very superior and with the *Bonellia viridis* there is a great difference in size, the female being markedly the superior.*

Starkweather gives numerous rules for the acquirement of superiority by one parent for the purpose of determining the sex of a child yet to be conceived. Now the whole trend of modern thought on this subject of heredity goes to show that the germ plasma if not entirely uninfluenced by any acquired characteristics in the parent organisms is but very slightly so. All these methods, recommended as favoring the determination of sex in the germ cells by the acquirement of superiority on the part of one or other of the parents, such as exercise, rest, feeding, fasting, fatigue, a certain mental state or attitude, produce at the best but the merest temporary somatogenic variations, and it is consequently hardly reasonable to suppose that they exert any influence whatever upon the germ cell since it has been shown many times that characteristics acquired by the parents for generation after generation do not make their appearance spontaneously in the offspring. Weismann says in this respect: "The transferance of sex has usually been looked upon as an act of transmission. This cannot be the case, inasmuch as every germ plasm contains the primary constituent for both sexes, and the process of transmission itself has evidently nothing to do with the determination of sex. As already mentioned, it does not by any means follow that because a child is a female its primary and secondary sexual characteristics will resemble its mother's. This indeed has long been known, but has not led to the general recognition that sex is not transmissible at all, and that on the contrary the primary contituents of both sexes are passed on from both sides."*

The last objection we shall urge here against the Starkweather hypothesis will be one which also will

* Beside those species with which one sex is constantly superior to the other, there are instances where, as with polygamous species, a number of females are ruled by one male, who for a long period of time kills or drives away any younger males aspiring to the leadership. Notwithstanding the leader's proved superiority, just as many males are born. The American bison is a case in point. This fact would also account for the majority of females noted in some species.

* "The Germ Plasm." A Weismann. Scribners' Contemporary Science Series, 1898.

serve to test many other theories. This is simply the birth of twins of both sexes. The term "twins" is used here in its popular meaning of two children born of the same mother as a result of the same pregnancy. True twins are always conceived at the same time, originate in the same ovum, and are always of the same sex, but two ova may be impregnated at the same time or at different times varying from twenty-four hours to one month or more apart and yet the children be born at the same parturition constituting not true twins but rather double births. These may be of the same or of different sexes. Where there is the fact of a double birth it is quite possible for the two children to possess different fathers. Instances of this have been recorded in medical literature. Now where we have a male and female child conceived, we will say scarcely twenty-four hours apart, we must suppose under the Starkweather hypothesis that the superiority of the parents has been subject to a very rapid alternation.

Here it might be well to consider this subject of twins in greater detail, as it has some important bearing on the discussion to follow. Gould and Pyle quote Hippocrates' observation that "twins are always the result of a single coitus and that each infant has a chorion," with the comment that both kinds of plural gestation, monochorionic and dichorionic, were known to the ancients.* This view of Hippocrates cannot be corroborated. Where twins are the result of one coitus they are always of the same sex and are enclosed in one chorion. It will be found in fact that there is some confusion and difference of opinion existing even to-day among physicians upon this matter of twins. It is difficult to see why there should be when there is no material disagreement among the authorities. Edgar has well summed up the matter in his *Practice of Obstetrics.* He says: "Twins may be derived from one ovum from each ovary, from two ova from the same ovary or from a double ovum both neuclei being fertilized, or from a division, which takes place in the blastoderm giving rise usually to conjoined twins." He further says that twins originating from a single ovum are always of the same sex. He thus describes the arrangement of the membranes: "The decidua vera is invariably single, the decidua reflexa is double when the ova are attached to parts of the uterine wall widely separated. The chorion, since it takes its origin from the zora pellucida, is invariably single where the twins are derived from two nuclei within a single ovum, but double when they originate from separate ova. Originally the amnion is always double for it is derived from the embryo although before delivery there may be an absorption of the septum between the products of conception. Primarily the placenta is double, for each fœtus produces its own allantois and the placental region resulting therefrom. In the case of twins resulting from different ova the placentæ may remain separate but fusion generally occurs. There is, almost without exception, an anastomosis of the vessels of the placentæ of twins from a single ovum, hence if there are two distinct ova there may be expected two sets of membranes, while in the case of one ovum there will be a double amnion with a single choirion and placenta. In a very rare number of cases only one amnion has been found, but the partition between the two had probably been absorbed."*

In the course of a series of controversial letters published in the *Medical World*† a few years ago, a number of physicians quoted their personal experiences as tending to show that twins of different sexes may possess but one placenta. We pointed out that in all probability had a closer examination of these different placentæ been made more or less distinct evidence of the fusion of two placentæ might have been observed. One case was quoted in which the attending physician stated positively that there had been but one placenta although the twins were of both sexes. We went to considerable trouble to procure this placenta and found on close examination undoubted evidence of the fusion of two placentæ. We have attended a considerable number of twin births but have never found an exception to this rule. Twins proper are *always* of the same sex, nourished through one placenta and enveloped in one chorion. The two or more children are very often counterparts of one anther, "as alike as peas in a pod," not only in appearance but in temperament. Even mothers must sometimes improvise marks of distinction. Not only are they alike physically but the bond of sympathy is very great. It has been noted that when one falls ill the other is likely to become similarly afflicted. All other so-called twins are double pregnancies, they may be of the same or opposite sex, but are conceived at different times, hours, days, weeks, or in rare cases even months apart.* There are thus a number of reasons for believing that homologinous twins are invariably conceived at the same time. It is important to remember in this connection that while a developing ovum may possess a double primitive trace, it has never been fertilized by more than spermatozoön. An ovum is often attacked by several spermatozoa, but as soon as one succeeds the others give up the struggle as far as that particular ovum is concerned. It is thus manifestly impossible that one division of the egg might be fertilized by one spermatozoön and another spermatozoön happening along later succeed in fertilizing the other division. *Conjoined twins are therefore the result of a simultaneous fertilization.*

George Jackson Fischer thus sums up what teratology has to teach us. He says: "For the past quarter of a century the writer has taken pains to carefully examine several hundred specimens of human double monsters and even larger numbers among the lower animals which are to be found in the pathological museums in the principal cities of the United States and he is able to state that he has never seen an exception to this law. The literature of teratology contains reports and references to no less than five hundred cases of human double monsters and also great numbers belonging to the beasts and birds and there is not a single modern instance in which the male and female organs are found to coexist. . . . It is safe to say that duality of sex will never be seen in a double monster."* Hirst and Piersol, who have made such valuable con-

* "Anomalies and Curiosities of Medicine."

* J. Clifton Edgar, "Practice of Obstetrics."

† *The Medical World,* Sept.-Nov., 1902.

* The children are born at the same time because when the elder arrives at full term the labor breaks up the fastenings of the other, its birth soon following.

*A Reference Handbook of the Medical Sciences, 1889. Subject, "Teratology."

tributions to teratological literature, confirm this observation.*

The theory that in conjoined twins there takes place a fusion between the two individuals after development has begun is one that is no longer tenable. A consideration of the process of development combined with a review of reports of dissections made from time to time will show why this is so. At any rate the view is now general that conjoined twins are the result of an incomplete fission of a primitive trace rather than a subsequent fusion of two embryos.

It could perhaps be held that this demonstration of a unity of sex in individuals whether united or not developing from the same ovum does not prove that sex depends on the time of fertilization, since the sex may be the same for the same reason that other characteristics are similar. With ordinary homologinous twins this similarity, as we have pointed out, often exists, and it is reasonable to suppose that children springing from the same ovum and fertilized by the same spermatozoön should be similar. *But are they always similar? In point of fact often they are not.* No doubt many physicians could give an instance where children of the same sex, inclosed in one chorion and nourished through one placenta displayed even at birth physical differences and very early manifested marked temperamental dissimilarities. Perhaps the best examples of this can be noted in conjoined twins, including here not only children joined at some part of their bodies by a band of more or less breadth and variety of tissue organization, but also, as in those cases, exemplified in the Tocci brothers, showing a complete fusion of one part of the two individuals. There have not been many instances where children born thus have lived long enough to be carefully examined or their mental and physical development watched. Nevertheless there are a few cases of this kind recorded in medical literature and in two or three instances the history is a fairly complete one. There can be no doubt but that these conjoined twins are often quite dissimilar *in everything but sex.* In the very well-known case of the Siamese twins, Chang and Eng were said to have been temperimentally very similar, liking and disliking the same things and never disagreeing in any way, but physically there was considerable difference between them, Eng being much stronger and possessing a decidedly better constitution than Chang. The North Carolina sisters, joined back to back, were born of negro parents and lived to adult age. They were said to have been remarkably different in temperament. The twins known as the Hungarian sisters were born in 1701. They were said to have been well formed and of pleasing appearance in every way except that they were united at the second sacral segment. They lived to be twenty-three years old. As might be expected they suffered from the infectious diseases, measles and smallpox, at the same time, but other diseases they had separately. Judith was not as strong as her sister Helen. Much has been written about them, but their mental history is not as complete as could be desired. The Tocci brothers, born in Italy, while possessing one body from the waist down, do not resemble each other very closely in conformation of the head and facial features, while there is quite a contrast between the two in mind and character. Dr. Harris says that such twins are never on exact equality of physical vigor. He further says: "United twins rarely bear a strong likeness to each other and in this respect are quite in contrast to normal twins and triplets of the same sex. . . . As a rule they are unlike in physical conformation, in measure of health and strength, in taste, and in mental characteristics."*

All this would seem to show that the conception that sex may be considered in the same category with other inherited qualities such as the color of hair, conformation of features or physical peculiarities has been a fruitful source of error and the germ of much useless speculation.

The view that the mammalian ovum is not primarily male or female but that it possesses equal capabilities of developing in one direction or the other is not uncommon. The ovum is thought to be in all probability in a state of delicate equilibrium so that a very slight influence may serve to turn the scale for the male or female sex as the case may be. Both sexes are thus potentially existant in the germ cell. There are a number of facts which may be adduced in support of this view. Some lower forms of life manifest a true hermaphroditism; tadpoles often seem to linger long in this neutral state before they finally take on definite male or female characters, and in the oyster the same set of organs fulfils both functions but at different times.* Darwin has called attention to the interesting fact that variations of some secondary sexual characters as a peculiarity in the growth of the beard may be inherited from the grandfather through the mother. This transmission of a peculiarity of a secondary sexual character through a parent of the opposite sex proves that secondary sexual character of one sex are latent in the opposite sex.* The organs of generation of each sex in themselves show many striking similarities, each peculiarity of one set having its analogy in the other. This fact has been long noted. Next it has been shown that secondary sexual characters depend very largely upon the integrity of the primary sex organs. Also attention has been called to the fact that after castration and in old age the secondary sex characters of the opposite sex are often developed. Furthermore organs and functions belonging more particularly to one sex exist in a rudimentary form in the opposite sex.

We thus see that while the primary sexual characteristics of one sex have their analogies in the opposite sex, they being in fact practically the same but functionating in a different manner, a whole host of secondary and tertiary† sexual characters of one sex are either latent rudimentary or manifested in the opposite sex. With these facts before us is it too much to suppose that the ovum is potentially both male and female? Weismann assumes the sexual determinants to be double, consisting of two groups of biophores and in all sexually dimorphic organisms he believes that the germ plasm

*"Human Monstrosities." Philadelphia, 1891-3.

*"The Blended Tocci Brothers and their Historical Analogues." Robert Harris, A.M., M.D., *American Journal of Obstetrics*, 1892, page 460.

*"The Evolution of Sex." Geddes and Thompson. Scribners' Contemporary Science Series.

*For a discussion of the relations in general between heredity and secondary sexual characters, see Darwin's "Animals and Plants Under Domestication," Chapter XII.

† By "tertiary sexual characters" is meant those characters manifested only in the aggregate, such as the greater height of men, the greater weight, in proportion to size, of women, etc. The term was, we believe, introduced by Mr. Havelock Ellis.

must contain other double primary constituents to account for the secondary sexual characters. Now whether this is so and the germ plasm be thus truly hermaphroditic or whether it is neutral is not of special moment here, but the fact that it originally is in a state of equilibrium and neither distinctively, or at least continually, male or female is extremely important. Weismann, referring to this point, says further . . . "we are ignorant of the forces and substances here concerned, but we at any rate know that the idioplasm of the primary germ cells in the higher animals is still capable of giving rise to either kind of germ cells and that the decision as to whether the germ cells will develop into ova or spermatozoa occurs at some early stage in embryogency. In the eggs of the bee it takes place in the beginning of the embryonic development long before the first primary germ cell is differentiated, while in other animals it perhaps occurs at a later stage. The well-known researches of Siebold and Leuchart prove that at any rate in the case of bees this decision rests on the occurrence or omission of fertilization.* It occurs then at a time when the germ plasm which controls the new organism is constituted."†

In reference to hermaphroditism Geddes and Thompson, in their very interesting and suggestive work on the evolution of sex, say: "There can be very little doubt that hermaphroditism was the primitive state among multicellular animals, at least after the differentiation of sex elements had been accomplished. In alternating rythms eggs and sperms were produced. The organism was alternately male and female. Of this primitive hermaphroditism there is probably more or less of a recapitulation in the life history of all animals. Gegenbauer states the common opinion in the following cautious and terse words: 'The hermaphroditic stage is the lower and the condition of distinct sexes has been derived from it.' Unisexual differentiation by the production of one kind of sexual apparatus takes place at very different stages in the development of the organism and often when the sexual organs have a very high degree of differentiation. The first structural stage in the separation would probably be the restriction of areas in which the formation of two kinds of cells still went on at different times in one organism. In different individuals the opposite tendencies we have already spoken of more and more predominated till unisexuality evolved out of hermaphroditism."*

The bisexual rythm which is here hinted at will be referred to later, but the many excellent reasons there are for believing that this primitive hermaphroditism so common in the lower forms of life may be considered as constituting the chief sex characteristic of the germ plasm itself, should be held in mind.

Writers on the problem of the determination of sex have usually depended largely upon statistics showing the proportion of male and female births, with different classes or races, or in different districts during certain periods of time. From these they have drawn conclusions usually favoring their own hypothesis. It should be unnecessary to call attention to the unreliability of this method unless it is carried out with more thoroughness and followed up through a longer period of time than as far as we are aware any one has heretofore attempted. The statistical method here is subject to the same objection that may be urged against it as applied to any other problem. That is, it must be more or less limited to certain districts or countries and at least to certain periods of time. We know that there are some problems to which, from their nature, it may be applied even in a limited degree without feeling that it may be instrumental in leading us astray, but this question of the predominance of male or female births is not one of them. It is indeed doubtful if for every set of tables from one country showing a predominance of a certain sex, another series from another country showing a predominance of births of the opposite sex might not be adduced to offset them. Statistics have been brought forward to support the most widely divergent theories, some requiring a predominance of male births and others demanding a predominance of female births for their support. While a minority may thus dispute this question, the belief that there is a continual tendency toward the maintenance of an equality in numbers between the sexes is prevalent not only among biologists and sociologists, but among mankind in general. It may be considered as almost self evident that there is something which maintains this balance, for if there were any definite factor (such as nutrition) creating a tendency in one sex to predominate, it is extremely doubtful if, acting over extended periods of time, or being augmented or diminished under certain conditions, its existence would not have been recognized long ere this.* Darwin held that there is undoubtedly a tendency toward the maintenance of such a balance, and gave us a tentative explanation of how it might be accomplished through the agency of natural selection.

Starkweather collected a number of facts bearing upon this phase of the problem and his conclusion was that there is undoubtedly constant tendency toward the maintenance of an equality in numbers between the sexes. He does not weary of insisting that this natural maintenance of a balance is one of the strongest arguments in favor of his hypothesis. While several reasons have been cited why we cannot subscribe to the theory of conference of sex, by superior opposites, he is undoubtedly correct in his contention that a balance in numbers between the sexes is in general maintained. It should now be conceded that at least as far as mankind is concerned we are safe in assuming this to be so. The question next arising is whether or not there is any other method by means of which this balance could be maintained. We believe that there is one and only one.

Tick, or spotted, or Rocky Mountain fever is the subject of a preliminary report by H. T. Rickets (*Jour. A. M. A.*, July 7, '06), who was unable to find a parasite in the blood. He did, however, transfer the infection to guinea pigs and to a monkey by inoculation. The relation of the tick to the disease has not been fully cleared up; this is a matter very important to determine fully.

*Males being said to develop from unfertilized and females from fertilized ova. This his since, however, been denied.

† "The Germ Plasm." Weismann.

* "The Evolution of Sex." Geddes and Thompson. Chapter VI.

*Mr. R. C. Punnett, after a series of comparisons of male and female birth rates in the slums of cities with births recorded in Burke's Peerage, concludes that nutrition has little or nothing to do with determining sex in man. See Proc. Cambridge Philosophical Society. Vol. II., pp. 262-267.

RIGHTS OF THE PARASTHENIC.

BY T. H. EVANS, M.D., PHILADELPHIA.

IN defending, or seeming to defend, that person whose acts have been called immoral, antisocial, or criminal, the countercharge of "sentimentality" is one of the least to be encountered. That he may have rights, then, is difficult to press beyond the fiction of the law.

But, reader, can you picture to yourself the childhood mind which thrilled with horror at the fate of enchantment, and the mysteries of all that realm in which unfriendly powers could seize upon the body of a luckless one and convert it to some vile purpose or object? Then think of the state of those, not unknown to sober fact of to-day, in which a warped mechanism or parasthenic vitality, diverts the actions and transmutes the person of the individual. I can think of no "spell," no enchantment, more hideous than the slavery of good faculties in the mind of criminal or morbid trend.

For every criminal presents in some respects a "good" side, and the fact that he has some friends is proof of some redeeming faculty. The unlooked for generosities and kindnesses on the part of criminals whose very name excites disgust stand as white and pure marble in the cemetery of their degradation. Lombroso, and others, remark on the peculiar good traits of the "worst criminals." They are surprised to find these evidences of any goodness. How stupid! For the essence of antisocial acts is to be found in difference of *motive*, and difference of mental ground in experience. To be more explicit, I mean to say that in each of us there are certain memories which are associated with each object, or act. For the lace-weaver there are muscular memories aroused at each sight of the fabric. For the victim of eye-strain each sight of print, or the lines of musical notation, there are memories of pain, or reflex distress. It is no plagiarism of Ruskin to assert the need of every child having that broad experience which will establish in him a fuller conception of the creation and body of the complexes of civilization, the true physiologic notation of the acts and ideals of mankind.

For the want of this sympathy, the degenerate and the defective may become antisocial, and usually do on account of very aloofness, remaining subject, at the same time, to the needs and passions of the race. In earlier papers, I, as well as other writers, have urged the need of reservations in which to place degenerates and defectives. I can not agree, however, with the efforts of some to educate these unfortunates in lines similar to normal schooling, for their ideals are limited to the nature of their essential physiology.

The best reason for asking, indeed demanding, sympathy for those branded as criminal, is the fact that the normal, sane, and mentally keen man can and does take advantage of his brother to-day by keeping within the written law, and yet defrauding the lesser intellect. The fact that the criminal is the one caught, is proof of his mental deficiency. What he did had been the result of his effort to acquire property or pleasure by reckless and violent means, and in so doing he has lapsed from the prudence which marks a well-balanced mind. For if, as in crimes of passion or revenge, the violence is the end desired, he is reverting to animal and pristine standards of conduct; and if, as in crimes of cunning, there is an object to be acquired or possessed, again we can discern decided evidence of the weaker mind battling the stronger, because of the failure to acquire within the letter of the law. So, in our methods of punishment, we have simply said, be cunning enough, or be condemned.

Crime, then, is a failure to measure up to a standard of strength in playing the "Game."

The crimes of each century are simply the efforts of the weaker ones to get the good things in ways not permitted by the wishes of the majority. It is right for the soldier to take life, as a soldier. It is right for the state to do that which it is wrong for the individual to do. In other words, it is wrong for us to do, acting singly, that which, acting together, it is not wrong to do. The essential nature of crime is here attacked with a vengeance. But the logic cannot be escaped.

In other ways we are wretchedly unjust. For we excuse the idiot, or the insane, crimes which if done by a sane man acting under temporary excitement, or worry, we do not. Yet how much more pain we cause to the appreciative mind than we might in the mind of the idiot or the perfectly irresponsible!

His punishment becomes a martyrdom. We have changed our entire psychology. James says that we are sorry because we cry, not that we cry because we are sorry. Where once we would speak of a man's mind being "lost," or of his being possessed by a devil, we now speak of his alterations in personality, and the acts of inferior circuits of the intellectual apparatus. The individual is not individual, it is appearing. And from time to time the person may present so different an equation as to act from radically different motives. In the return to his better self, how acute must be his suffering, if the acts of the lower personality have involved his body and fortunes in disgrace!

Parasthenics are those whose powers of inhibition are of fluctuating influence, and whether due to some strain in the physiology, or some pathologic condition, or to some inherent quality of the tissues themselves, the motives of the person are so altered, from time to time, that in periods he approaches or enters the territory of true irresponsibility. These have to meet life with no certain knowledge of their weakness, and suffer for that for which they are not accountable.

Few of us would care to be the one to carry out the provisions of a death sentence. If, for reasons of personal dislike of the criminal we would so elect, is not our train of thought very similar to that of the criminal of occasion, or the criminal of passion? In our case founded on actual conditions, in his case founded on a misconception, but that does us the less credit, since our superior balance and understanding of the facts should guard us, certainly if we expect so much restraint of the other, from any outbreak of the elemental.

Our fatuous treatment of sexual inverts is in point. And it is more foolish on our part to prevent them from childless practices, because why should they bear children? On the other hand, if their peculiar nature is allowed full bloom all their possible benefit to us may be reaped, and their poems, their paintings, their literature becomes the heritage of mankind. A starved nature is not to be expected to become productive, and the laws of being in forbidding them children, may destine some splendid work of art, more valuable than a tainted progeny. The race will be perpetuated, and

there are enough normal beings to do so. Let our efforts be to find each his métier, and not lay down single lines of production and life.

False notions of necessity in sexual matters lead to dangers worse than truth is let to tell. When we read of the execution of some colored youth (for the usual crime), some youth barely seventeen years in this world, at whose door do we lay the ultimate judgment?

I have in mind a particularly vicious case, in which two women were assaulted, and yet the criminal so young knew neither his father nor mother. He asked for forgiveness, and accounts say, wept softly when he finally faced the gallows. Chained, he was hurried to the execution and then paid as much as any man can pay—his life—for his error.

Thank God that no one I care for has been wronged by such a brute! But, I ask, what is the country doing to protect those I hold dear? Do these executions really inhibit? No. I admit that even the insane may be frightened, but only while in custody.

At large, the insane may become more cautious, and thereby succeed in making it harder for us to outwit him. I am afraid that we have taken the wrong end of the problem.

In this contest of intellects and passions, we may even give the criminal new purpose in the pleasure of outwitting us. We have raised antagonism and lost his friendly faculties. But still more, we are creating a fatal atmosphere, whose psychological effect will add to the damage of the future.

Picture the train of circumstances leading to the prison and the death on a gallows!

Born of parents, not married, but vicious or unknown, perhaps, to the criminal. Growing up in vicious surroundings. Or, if well care for, physically, by some bodily defect, not able to enter into normal life with his fellows. I mean, the victim of eye-strain, who fails in school. Or the neurasthenic, or the parasthenic who is periodically changed, and can not persist in his occupation, whether by inability to do the work, or by reason of troubles arising out of actions done when more or less irresponsible. The boy grows up, and becomes adolescent, he finds his sexual nature. This in such cases is often precocious. Circumstances do not fail to find in this his primary undoing. He needs money to accomplish his ends. He needs many things, and in these precocious needs are additional sources of crime. But in the fluctuating mind, and the accessional outbreaks of diminished inhibition, we are to look for the truest reading of his downfall.

The crime is done—let us say, murder. I read of the boy and his companion in crime in the jail. At last when too late, the hand of society strikes them.

I have in mind two such boys, who were hanged. While awaiting their end, they wrote some verses, which I insert. We may admire a great poem, and respect its author. Does the pity for blind striving after the beautiful have to ignore the efforts of stunted and deformed minds? O, enchantment, and slavery of the better by the worse! There is in these poor stanzas a message which carries a call its own in the very imperfection of handling the symbols of expression. The very foreignness and imperfection tells us that the writers were not of us. The foreignness is that of one who has been forever denied the heaven of expression.

A convict in a cell, a dungeon,
Spoke of home and loved ones dear,
Said his cellmate in a whisper:
"Do you think the end is near?"

"How I long to see my mother
In a cottage on a hill;
God bless them all," I heard him whisper,
As with tears his eyes did fill.

"If I die before I see them
Tell them how I longed to-night
To have my mother's blessing
As I leave this world so bright.

"And how often my little sister,
With shame has hung her head,
But I hope she will forgive me
When I'm numbered with the dead.

"How often my little sister,
Bonnie blue-eyed Nell,
How often I have blessed her,
From my lonely prison cell!

"My brothers have turned against me
Since to prison I have come.
If they have I cannot blame them,
For bad company I did not shun.

"My mother's heart was broken
To hear of her wayward son,
To the gallows he was sentenced
For a crime that he had done.

"Take this keepsake to my mother,
'Tis but a lock of hair;
It is all I have to send her,
She will treasure it with care."

As he handed me the keepsake,
The spark of life had almost fled,
Said his cellmate in a whisper,
"The convict in his cell lies dead."

These stanzas were written by two boys, jointly. The workmanship shows a variable point of view, not well handled. But most of all, the lines show the limit of symbolism to which they reached. Traditional phrases, hackneyed, but evidently thought poetic, and accompanied in the minds of the writers with the keenest emotion, are here.

Reader, enter their cell. Be one of them. Your life is approaching its end, and a violent one. Each day as it dawns may be the one in which a group of stern men should take you and pitilessly bind you and kill you. Are you sleepy? Do not go to sleep. You have not much time to go on thinking, and it is precious. Are you thinking of things you had planned to do? No matter, that is all arranged, and nothing shall disturb you soon.

It is all a hideous mistake! Am I not to awake, and find that my home is around me, and that I am safe in my old room, and my mother bending over me? No. No. Those old days are past for good and all. This is the real, the very real in which the drama goes onward with clocklike precision. And no pleading and no excuse can avail in this train of circumstance that pushes up to the shadow of the gallows. A hard situa

tion for a boy to act in! We are sending boys through this often. Society does not flinch from extinguishing the life, coolly and exactly, which, if stunted, is the son, the daughter, of us and our mode of life.

If we do not kill, we brand. And then turn back to associate with those only whose evil natures fear no brand.

Yes, this is food for the thoughts of medical men. What are we doing to take charge of mental and moral incompetents in time to prevent crime, and what are we doing to reform them when they have openly gone wrong?

I am working among many victims of drug habits. And these young men, and young women, present some of the finest qualities along with some of the most depraved. Who of us can point out a place in which these could be given safety and opportunity? The opportunity to work, to write, to study, and to develop, which they have a right to. We have given them life. Let us give them what makes life full and beautiful.

Sometimes I question our right to deprive them of the drug, or the alcohol. In this way, at least. They suffer without it, and seem cut off from a species of food. They are less able to control their actions, and do crimes as much from faulty inhibition as from the desire to obtain the wherewithal to buy the supplies of the drug in use. In depriving them of their drug we ought to give equal attention to a normal hygiene, and a substitution of new interests in life within the powers of their body and mind. How futile to prescribe study for a weakling whose eyes are one near-sighted, and the other farsighted, with asymmetric astigmatism! Add to this a muscular imbalance and a fault of innervation and the problem becomes a farce—to all but the unhappy victim of fate.

But what shall we do with the criminals which are around us? Are we to foster them and give them a life of pleasure and one long vacation? I hear many similar exclamations.

Robert Hunter has shown that many sane and well-balanced men and women are unable to find opportunity to work, and to get the things which make life really endurable. How then can we demand of the abnormal and the imbalanced the accomplishment of that pursuit of life which is more than we who succeed can assure all our fellows?

The question is simply one of *media*.

The criminal, or the degenerate, if let free to follow out his own impulses, will settle in a congenial environment. Let us wall in our tenderloins. Let one law carry in these spaces, and another outside where the average organism lives by preference. If any enter this confine let him be searched before entering and on leaving. Let those who leave be placed in a temporary place of moral disinfection. Of quarantine. But do not permit free entrance and exit. In addition, let us have country reservations to which voluntary, and others, to which involuntary cases may be sent and guardedly develop. Separation and individual study of cases is the keynote.

But within limits, it should be allowed that an individual has the right to exercise his functions, however evil in our sight. What we may do is to protect from these evil influences any who do not think likewise. Let us remember that we owe the opportunity of beautiful, good, and true experience to every soul we generate. And that we are responsible to the extent that he has this opportunity. But if he elects to do and think according to motives opposed to our standards, are we able to say that we are right and he is wrong? What is the ultimate good? The question still asks itself. But we have a right to restrain and protect, according to the best light of the majority.

To the medical man has come a great moment. The day is one in which he is looked upon as the wisest and most learned in what constitutes human happiness. I call upon all to unite in finding out this path. I accuse all who refuse to concern themselves in this serious question, of worse than the crimes with which they so lightly charge others.

When we hang a man we admit not his failure, but ours.

Yes, we are his parents and he is our child. The supreme test in the Old Testament, was that of the father asked to slay his child. God refused to press it. Rather did divine Justice turn upon Himself, and pay the penalty, in heavenly symbolism. Until we have paid the penalty of our own greed and selfishness and given to each individual the opportunity, the medium, in which he can best develop what in him is, I assert we have no right to take life from the criminal, or to imprison him in such a way that it is punishment and not improvement.

Give him some part of each day, while in restraint, in which his volition and expression may grow. And the medical man, the wise and appreciative psychologist, is the only man fit to oversee the places of restraint in which our criminals are to be cared for.

Let us grant the lawyer his duty in apprehending those who overstep the law. But we shall and must demand that living beings belong to the charge of those who study and work with the field of physiology and psychology.

This becomes so much more to the point in this day when laws on every conceivable action of mankind are being enacted, for in some states the mere rolling of a cigarette was termed a technical "manufacture" and one violating this law stood with murderers and felons and criminals in general in the dock on the morning of trial!

In no sarcasm I beg let us have reservations in which law is less rigid! If to the pure minds and wise intellects of the legislators so much is criminal and to be reprehended, let us set apart a few acres in which on Sunday and in freedom a man may draw his breath! Here we may go to turn our toes out, or in, as fancy strikes us. But best of all, if it is right for the majority to live under the tons of legal statutes, have spaces in our free country in which our heads may look up to the light of heaven and our faces wear what expression they like.

Crime is an infringement of the rights of body or property on the part of an individual. The State can do no wrong! Are we to have an endless sucession of laws just because it is the time of the lawmakers to meet? Why multiply crimes? Alas, big properties require big protection! The simplicity of early days is not developing into a beautiful civilization, worthy of the trouble to maintain its proportions, but into one that seeks gewgaws and toys. To guard these, and to supply them in increasing amounts, the fiber of our race is crushed and its life blood extorted.

My weak words will not turn the tide, never fear,

but in sending out this paper I have the hope that many will hear the call of individualism, and the right to be and do and develop, and answer, in no uncertain voice, that along with the average man and his career there is justice in preserving the rights of those not average, or even criminal.

This is more plain to all when we remember that these same criminals may, and usually do, have good faculties which could be utilized. The convict often makes curious and intricate mechanisms. He may be a painter, an artist. It is a crime to hang a poet. It is a crime to allow a poet to commit murder. Put the boot on the other foot. Why do we allow criminals to effect their crimes? As to parasthenics, and the irresponsible, what a field of duty!

3353 North Front street.

ROOF RECREATION IN SUMMER.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

THIS paper is written in the oppressiveness of the sultry month of August—the month of persistent smudgy stickiness, when everything seems to exude—when skin, mucous membranes, all that one touches or can experience are somehow representative of derisive annoyance, when necessary respiration helplessly yearns for the comfort of refreshment, when stomach and bowels resemble wavering fringes of functional revolt, when appetite is the fugitive of qualms, when sleep is the weary recruit between bidden repose and decomposing sweat, when the gleam of morning is grasped for at the front doorstep ere the sun swings up again as the smiter of happiness and the lasher of life—when ambition's anchor has wilted into a dishrag of debility, and the punishments of God seem ruthlessly beating down to helpless earth with the exhausting breath of consuming fire. Such have seemed our August days, 1906.

It is always nice to think of something pretty to do. I once knew a young lady of sensitive education, who had literally imbibed the per column ideality of a popular publication, and henceforth strenuously applied her wakened desire to have window ledge boxes made for the delights of window gardens. These were duly provided by the carpenter, installed in appropriate form, and the best of woods earth found and carried home to render these ideal gardens prolific of joys. Then promising seeds of pleasure were planted along the middles of parturient areas, blooming plants were inserted in the corners to proudly flag the field, a new watering-pot was ordered into sprinkling requisition, and the developments of new creation expectantly watched. It was a delight to witness this city amateur's ardor as a promoter of floral beauty upon her bedroom window sills. Emotional creatures are kites of temperament in the veerings of the breeze. One day for change she fancied that a run to the seashore for threescore hours would tide her enjoyments to more beamy crests, while the window gardens were committed to the angel of chance. When she returned a hot sunshine had baked her boxed soil, her corner floral tenants had doffed their sensitive beauty into dreams of wilt and atrophy, with the result that the florist must be promptly visited, and a renewed stock of sappy stems again bobbed their blooming crowns over the late graves of the departed. The ensuing stunt of procedure was to inquisitively disinter special lines of buried seeds to see if these were actually sprouting into visible signs of prospective vitality. Some sprouts appearing, the disturbed earth was again smoothed over—to be reopened two days later to break the natural course of growth to discover what progress the belated seeds were gaining. A bit of trip to a popular mountain resort was the next reconnaissance, and another week of disused watering-pot in dry weather collapsed this enthusiastic campaign of window gardening with the drastic disclaimer that its scheme brought more nuisance than satisfaction, that the long caskets of dull, ungainly soil must be deported from sight and service to the shadows of the cellar and the game dismissed. The change from the natural to the artificial garden bore only disconsolate fruit.

A brother doctor may here ask: "What has this prologue to do with a medical subject in a medical journal?" Every discriminating reader may discern that THE MEDICAL TIMES has aloft a pennant on its flagstaff which reads: "Journal of Collateral Sciences." At the collar-line beneath the heading of its July editorial column we read: "Life is a series of surprises." As I study it, these monthly aphorisms of THE TIMES lift the mental apprehension above the smudgy doses of epsom and aloes to planes of pleasing contemplation of pearls of moral and spiritual gain to drudging hearts. The mind is the greater adjunct of the mortal body. We need to avoid the narrow groove of even professional existence. Our psychology grasps for the relief of a wise maxim, the smile of a boutonniere of illustration more often than tense descriptions of green apple colic and nominal repeats of drug dosages. For one, I always look for the editor's mental formula for each successive month at the collar-line grip of the editorial column. It is rational. The immortal mentality needs logically to rise a degree higher than the surface of ugly tongues, the revolting reservoirs of stomachs, the offensive purlieus of the bowels of human existance. We need a breath of nerve relief from the monotony of nasty conditions that depress the plodding doctor's horizon to reflections of the milky way of babies' foods, sour stomachs and offensive napkins. And so THE MEDICAL TIMES, anon and yet again, strikes a luminous match and lights a path-lamp to gleam for the weary wayfarer who would plod safely across the oozy boglands of spumy microbes and croaking frogs. The August TIMES rises to the zenith of inspiration with another of the immortal Emerson's gems of thought and truth: "The soul knows only soul, the web of events is the flowering robe in which she is clothed."

This preface bears along its little taper of purport, that limns into relative profile the attitude that our subject, Roof Recreation, assumes as a means of service to children and families in heated terms of weather. Some years ago, in his activities of thought, there lived a prominent medical editor who repeatedly advocated resort to roofs of dwellings for children and families as supposed relief from the closeness of narrow streets in denser locations of city circumstances. Newspaper paragraphs occasionally repeated similar modes of relief to the poor in slum districts where streets and alleys are unhallowed in hygiene and human comfort under sweltering conditions. At cursory glance the suggestion appears romantic, attractive, almost poetic for an atmosphere of comforting domesticity—in case the danger lines were amply guarded—a matter of considerable expense. A roof elevation, with pleasant comradeship added, seems to lift the personality with the widened ex-

panse of view. Roof gardens have been made features of revelry and dissipations by the gay and risque element of certain lines of society. The get-awayness or out-of-sightness of such retreats has drawn zest to desire for exclusion from the common walks of observation, and whetted the relish for temptation of license beyond approved limits of ordinary discretion. Roof gardens may be even furnished with exotics of many climes and evergreens of choice adoption, yet the wines may disguise the serpent and the frolics disport the garb of Satan. Even as an observatory, a roof is no better for flowers and ferns than is a horticultural display founded upon the ground.

The advocates of roof for playgrounds and sleeping quarters for children and others seem blind to the desperate fact that the elevations of roofs mean the immediate proximity of chimneys that are constantly conveying to the level of the roof air the smoke and soot and exceedingly poisonous carbonic oxide gases from every fireplace, range, stove or furnace in use in the neighborhood. Possibly the disgorged smoke and gas from railroad locomotives, from a nearby stationary engine house or iron works may be polluting the breathing-air more densely on the level of the roofs than on the level of the streets beneath. Any child might innocently from the roof of my house build games with blocks against the sides of the chimney that is "going" full blast as the outlet of the coal gas from our kitchen range; that child would need be carried down to a sick-room gasping with croup or acute bronchitis, or even pneumonia, because of the poison inhaled during a few hours of tragic amusement. A diphtheria from contact of gas-poisoned air upon the tender tissues of the throat when breathing is ten times more certain and more fatal than the folderol contagion from a bacillus that supposedly infects the mucous tissues of the throat and breeds a riot of local and constitutional destruction. If the medical profession ever comes to a sane sense of the common and natural causes of most disease, there will be many big jobs of tomfoolery abandoned with a corresponding increase of happy and easy recoveries, to say nothing now about the saving of expenses. Again, roof recreations among gassy chimneys would produce more anemia, more dullness and languor, more headache and muscle pain than would playing upon the dirty street. This doctrine may rouse some questions of thought, but its truth can never be controverted. Go upon my three-story house roof and hold your face and nostrils ten minutes fully over either chimney when "going" at full rate of service, and you will come down a convinced but possibly suffocated man. Then what about a child set to amusements on such location? It is evident that the inconvenience of reaching most roofs has saved many lives. How could any consumptive person ever be expected to improve or even exist on roof gases? The natural drafts of air into windows of top stories too often suck along the chimney gases discharged just above the roofs. When such is the case you may be considered well as usual when you retire, but ill with a "fresh cold" when you rise next morning, because throat and chest have been excoriated with poisoned air during the hours given over to the intended recuperation of sleep. This being so inside the room, how would one be likely to fare if out upon the roof with the chimney gases falling thick about you? It will be said that there may be felt on the roof the motion of the air without hindrance—the advantage of a breeze. But to sit or to play in a sizzling hot air when the motion of which only wafts to and fro its invisible freight of subtle gases along the planes of chimney tops, is certain to prove an unhappy waste of time and vitality.

A special objection to using the house roof as a recreation resort is the fact that most city roofs are painted sheets of iron or steel, in parlance known as roofing tin. In dry weather, with the broiling sun beating upon this field of metal, its temperature becomes intensely and dangerously high. While burning to the touch, the accumulated heat of the roof is radiated into the faces and the breaths of any occupants there, of whatever age, with direct possibility of serious physical harm. Therefore, in this special sense the situation for recreation would soon prove to be more unsanitary and unsafe than the ground floor of a decently clean indoors or the outdoor shade of a few trees. Tin roofs, furthermore, are joined by relays of strips eighteen inches wide, with their edges clamped together in the form of spines that rise nearly an inch above the flat level of the roofing. The accident of tripping and falling, with face striking upon one of these numerous cutting upright edges, would naturally scar and mar for life the beauty of features, the more regrettably if belonging to a handsome girl. Moreover, any damage done to the lines of clamped tin by running over them with hard shoes is quite certain to open a minute crevice here and there, by the process of expansion and contraction characteristic of metal joinery, and serious leakages will follow, to the injury of ceilings and paper whenever the snows of the ensuing winter cover the roofs with slush by melting—an unfortunate and costly penalty for misusing a flat house-roof. And obviously enough, it is useless to revert to the roof as a resort in wet weather, or in rain storm, when all shelter would be ineffectual and its gutters like brooks of running water. To mollify the discomforts of hot weather, I have heard it proposed to erect shelter tents upon the roof of the house to obviate the direct effects of the sunshine. Such persons, as a rule of sincere thought, have had little but an ideal conception of the efforts of direct sunshine in torrid weather on the canvas of a moderate sized tent. At the moment that the thought of an episode of tent life strikes the fancy, the spirit of the Indian enters the heart. But the movable teepees of Indian habitation are mere travesties of shelter-comfort as compared with houses standing upon foundations above ground. A hot sun beating upon a tent of ordinary dimensions quickly converts its inside into a smothering oven where it is easier to sweat than to comfortably breathe. Some experience in army existence on a sunny slope beyond the Capitol, Washington, D. C., in late July, with a regiment of men wilting into states of nausea and diarrhœa, put to speedy flight the writer's romance of tent life in hot weather. The little tent for children on the metal of the sizzling roof would mean the doctor on the third day, and possibly a funeral on the twelfth. The place for a tent is upon the ground, with a floor of wood—not upon the house-top, with the glare of the sun overhead and the radiation of hot steel on all sides. Furthermore, the glare of sunshine on a heated roof would manifestly prove so detrimental to the eye structure of children, unsuspecting and unguarded, that disordered eyesight would follow, and many visits to the oculist and expensive eyeglasses must follow also, to prevent premature degrees of blindness. Very few of the misfortunes of life are wholly spontaneous and uncomplicated with causative conditions.

Effect is as natural as the tendency of cause, and in cities children's eyesight calls for abnormal use of eyeglasses because of the abnormal abuses that disturb and distort the functions of the eyes.

Even were it not necessary to avoid the prevalence of fuel gases from chimney tops in proximity to most house roofs, the reasonable way to render a roof comfortably available for summer recreations would be to floor it with boards above the tin surface, and erect upon this flooring a shingle-covered shelter at least ten to fifteen feet high, and left unclosed on all sides. Very few tenants could ever expect the landlords to incur so much expense for so brief and interrupted a service, unless there was a recognized advance in rent rates. Very few owners of private property, indeed, would for an hour sincerely consider such outlay, unless the case was almost fancifully exceptional—one in five hundred instances. Hence the idea of roof resorts for family advantage may be considered injudicious and impracticable from the point of convenience and sanitary advantage. It would be more than a hundredfold better for families in congested districts of cities to abandon all ideas of resort to roofs for escape from the belting heat and closeness of narrow and unwholesome streets, by scattering out into the open country waysides, where the rents would be merely nominal, the garden and vegetable patch ample, hens and pigs the common products of the land, potatoes and beans all home-raised, and fresh air the unlimited, free gift of God. There is the exaltation of ozone and life; here is the drudgery and cramp of abnormal existence. The writer is no connoisseur of fables. He knows practically what he talks about. He has, in his early life, "grubbed" the saplings from the untilled soil, split the rails to construct the fence, plowed the ground to prepare it for the reception of seed, "cradled" the crop with the old-time means of reaping, and then threshed out the grain for family bread. He experienced a quality of happiness when doing this that the burdens of town life in more responsible spheres inadequately pay as reward. He knows of a farm in central Pennsylvania whose former owners have "passed over"; the land lies neglected, the broad acres are yielding themselves captive to briers; but these acres might be rendered remunerative if divided into a score of lots devoted to vegetables, to fruit trees and vineyards, and a score of families there to enjoy them. I know of a farm of sixty acres, with good dwelling and barn, with orchard and grazing fields, which rents for forty dollars a year—somewhat over three dollars per month—and the tenants making a neat living from the small industries they apply to cultivation. I also know of a country village where a retired gentleman resided in an excellent two-story house, porch front and back, large garden for strawberries and general vegetables, a prolific grapevine, various fruit trees, an acre of truck lot for corn and potatoes, whose rent was three dollars per month, net. His chickens furnished enough extra eggs to provide his home with butter and sugar, and the leavings of house produce fatted for him a fine pig each year for fresh pork and smoked meat. Half the people in the world don't know how comfortably the other half lives, because the former don't try the better way. Compare a situation like this with the struggle of the poor in overcrowded areas in cities, where drink and vice deepen the misery of relatively degraded existence—and the contrast of local situation and daily respect is like the lift from a miry morass to a hilltop of early sunrises.

The builders of cities never build wisely for the world, when small houses are so closely crowded together that the need of more space and more air physically suggests resort to roofs for alternative. God's earth is expansive enough to allow liberal space to surround each and every dwelling, in order practically to make them homes of generous civilization, rather than condensed dens of demoralizing conditions because of the absolute propinquity of all sorts, whereby the evil of a few too often extends its infections to all. A neighborhood usually becomes like what its houses invite. Hence the construction of tenement houses, for sanitary and moral reasons, should have in beneficent view the protective uplift of all future tenantry to planes of physical comfort and the guardianship of family seclusion. Even six feet of area on both sides of each dwelling, for people in plain circumstances, would, beyond estimate, add to the cultivation of superior habits and moral developments that ample breathing space naturally promotes. Besides the gift of health, it is as feasible for families to measure upward to the proportions of comfortable homes and attractive surroundings, as, on the other hand, it is a natural degeneration of morals that attends the down grade proportions of cramped and debasing class of habitations, where drink is resorted to by habit as an expedient for obtaining a lively sense of physical comfort, and where low ideals dovetail into contracted estimates of the royalties of human progress. Of all men, the man who builds the town should be equipped with elevation of purpose that cancels from his sight the per cent. of immediate graft, which schemes the packing together of a hundred dwellings upon an area of earth which could decently afford but half that number, when the interests of humanity are allowed to share the prospect. None but humanitarians should be allowed to plan for the homes of the indiscriminate class of working poor who start poor, stay poor, and usually die worse off. All the more elevating influences and possibilities of life are duplicated, yes, quadrupled by daily detachment from gross and degenerate home environments. I know too well a midway street within occasional earshot, where the fact of abiding is an equivalent of lowered ideals which affiliate with dominant estrangement from elevated circles of moral attainment. The transient occupants who traverse the long unkempt alleyway from back gates, or who cluster about their fastby front doorsteps, as though by unison of habit, fit themselves, not into abysmal constraints of squalor, but into passive assumptions of cheapened moral range, that resembles the type of residences in which they abide. Walk the way occasionally. There is the furtive carrier of the beer kettle. By chance the passion-storm of the wife beater. Anon the ear-lash of loud-voiced scolders. Repeats of ill-tempered women who uncouthly whip or slap screaming children. Where anon the burst of boisterous hilarity rolls like trumpet blasts. Situation where by the sheer gravity of unconscious imitation, or the vehemence of unrestricted initiation all do as Rome does.

We begin to comprehend that a genuine missionary work of humanitarian import awaits the grasp of high minded contractors and builders of homes for present and for future generations. Men of noble aims, whose sense of the application of capital and moral profits

will recognize the superior values of providing sufficient ground and air-space around each dwelling, to enable the better and higher ideals of tenants and purchasers to escape the cramp and smother that naturally pervert the home into an arena of domestic irritation, discontent and sorrow.

1726 North Twenty-second street.

SUCCESSFUL TREATMENT OF EMPYEMA.

BY J. E. MARSHALL, M.D.

GRUENBAUM has been successful recently in the treatment of chronic empyema by using the application of a negative pressure to the pleural cavity for several hours daily; the development of a negative pressure of 10 to 15 mm. Hg can be maintained by inexpensive apparatus, but in selecting the pump, remember that as there may be a slight leak at the chest wall, it is wise to choose a pump which will remove considerable quantities of air, and not one which is intended to produce a perfect vacuum. For this purpose, Fischer's filter pump is almost ideal, for the regulation of the negative pressure developed is easily carried out by altering the length of the tube used; this pump requires less than half a gallon an hour and gives but little trouble. Do not connect the pump direct with the empyema, for if anything should go with the pump, water would pass into the cavity; and if there is much discharge, the pump becomes dirty and does not act. A large bottle is placed between the pump and the chest, and this is partially filled with carbolic lotion; by placing the bottle on a higher level than the pump, even when the water is flowing extremely slow, respiratory movements do not lead to sufficient alteration in pressure to draw the water into it. A negative pressure of 80 mm. XG Hg. is used in adult cases, and this is accompanied by having a fall of about 2 meters. Gruenbaum advised one that would work without any attention at all; for this purpose a small exhaust pump of about 16 c. cm. capacity was run by a small electric motor; it is necessary to place a valve in the system to prevent too great a negative pressure. The arangement which was adopted consisted in connecting the pump with a large wide mouthed bottle, through the cork of which three tubes passed; one was connected with the pump, one with the chest, and the third was open above, but inside the bottle passed into a cylinder containing mercury. The depth of the mercury was over 15 cm.; the tube could be drawn up so that the distance of the end from the surface of the mercury could be adjusted with ease. The cylinder should be at least 2 centimeters in diameter, because air bubbling through mercury agitates it so greatly that if a small cylinder be used the mercury would be thrown out; and gauze should be tied over the top of the cylinder. The negative pressure depends on the depth of the opening of the tube below the surface of the mercury and efficiently prevents a dangerous exhaust. The treatment is painless; usually the pulse rate is slightly accelerated, but that may be due to the excitement of having the apparatus by the bedside, and the advantages which may be claimed for this treatment are: The negative pressure tends to expand the lung without necessarily causing empyema of the other lung, which may be expected from the use of James' bottles, and secondly, the negative pressure produces a hyperemia of the tissues of the pleural cavity, increasing their local resistance.

West in a Bradshaw Lecture, published in 1887, claims that the fact that the pleural cavity may be laid open and yet that collapse of the lung with consequent pneumothorax may not occur must be accepted, and the explanation sought. "When the lung does not contract after the pleura is open, it must be due to the cohesion between the two serous surfaces." He experimented with disks of wood, upon which were stretched stomach and other membranes, cohesions of which when wet and applied one to the other demonstrated that the lung will not let go its hold upon the pleura.

Thompson experimented upon a dog in the Loomis Laboratory, a medium-sized dog being selected and etherized; a very small opening was made into the pleural cavity with a knife. The lung was seen at once to collapse, and the collapse was in proportion to the size of the opening. When a small opening was made, the pleura pulmonaris receded from the pleura costalis but a little distance; violent coughing of the dog would again expand the lung, when the opening in the chest wall was small, but when the opening was made still larger and a small portion of a rib resected, the lung receded from the chest wall about two inches. The collapse of the lung took place equally over its entire external surface. When the opening was made larger than the trachea, the lung completely collapsed. A piece of glass was applied over the opening, and upon inspiration the lung was seen to fill with air. The glass being removed upon expiration, the air escaped through the opening from the trocacic cavity. As the effort of inspiration began, the glass was again applied and the lung rapidly filled with air, completely expanding after two or three inspiratory efforts; it was a question not of the cohesion of the pleural surfaces, but simply a mechanical question of pneumatic pressure. When a vacuum was produced beneath the lung by a removal of air, the lung rapidly expanded. When air was allowed to enter the pleural cavity freely through a large opening, an opening larger than the trachea, the lung did not expand even in convulsive coughing. When the hole in the thoracic wall was made smaller than the trachea, an effort of coughing would expand the lung, provided the air was allowed to escape through the thoracic opening; but if the window was not applied the lung remained collapsed, no air being pumped from the sound lung; the expansion of the collapsed lung was not due to the forcing of the air from the sound lung into the collapsed lung by any expiratory effort, but simply to pneumatic pressure produced by emptying the pleural cavity of its air. The glass was held over the opening. The dog revived. A similar opening was made upon the opposite side. That lung was allowed to collapse. The windows were removed from both openings; both lungs collapsed, the dog became pulseless, ceased to breathe, would have died, but when the windows were again applied, and the cavities emptied of their air, the lungs expanded again. Dwyer performed experiments to prove the theory of Smith and Frentzel that the collapsed lung expanded by air being forced into it from the sound lung. In the researches of the Loomis Laboratory No. 1 his experiments are recorded. "The sound lung being distended by a full inspiration, followed by spasmodic contraction of the respiratory muscles which condenses the

air, and its escape being prevented by a partial closure of the glottis, a portion of it is pumped into the collapsed lung. If these forcible expiratory movements be quickened in quick succession, the collapsed lung is not only expanded until it fills its cavity, but a portion may be driven through the opening in the chest wall." If the opening is much smaller in the thoracic wall than the trachea, and the coughing or forcible expiratory movements be quick, and the air allowed to leave the pleural cavity, the pumping movement, with or without the closed glottis, would naturally expand the lung. But if the opening in the chest wall is closed, whether it is small or large the lung will not expand until the air has been absorbed or expelled from the cavity. The lung immediately collapses in proportion to the size of the opening in the chest wall after the coughing ceases.

The proper classification of empyema and the establishing of a first principle to govern the treatment of all cases would be a distinct advance; before an abscess heals in any part of the body its cavity must be obliterated by the approximation of the two surfaces either by granulation and gradual contraction or by primary union. By use of antiseptic surgery, many abscess cavities are curetted thoroughly and their surfaces nicely approximated, the result being primary union and the obliteration of the abscess cavity. The abscess has not been cured by the draining and dressing, but by the cavity being put in a condition favorable for its obliteration. Nature now uninfluenced by the germs of infection or accumulating secretions, does her work waithfully and well. The first principle in the treatment of empyema is the obliteration of the abscess cavity by the approximation of the pleural surfaces. By the approximation and possible union of the pleural surfaces (a large percentage of subjects in the dissecting-room show adhesions of the pleura), remembering that every inch of lung expansion diminishes in that proportion the pus secreting surface. Empty the cavity of its contents at once to prevent the permanent collapse of the lung, and establish a perfect and adequate drainage. Thoroughly wash and disinfect it when the contents of the cavity are fœtid and the temperature remains high; empty the cavity of its air by constant aspiration with a valvular draining tube, or by any other means possible, only empty it. Abscesses in the soft parts collapse after emptying them, and thereby the surfaces are approximated. One of the boundaries of an empyema is a rigid chest wall, and the approximation of the pleural surfaces must take place by the soft parts advancing toward the chest wall by the expansion of the lung, but this process cannot take place if the cavity is filled with pus, serum or air; consequently, the abscess must be emptied not only of its fluid contents, but of the air also, as it prevents the expansion of the lung. The fluid can not all be withdrawn if the lung is incapable of expansion; air must be admitted as fluid discharges. But enough air should be withdrawn by constant aspiration to keep up, not an intermittent, but a constant pulling on the lung by the vacuum produced. When the lung ceases to expand and the condition of the patient will warrant it, the ribs may be resected and the chest wall pressed inward to obliterate the cavity. If the empyema is recent, the pluera is probably in a healthy condition, except where inflamed. If the abscess is small, and the condition of the patient indicates the subsidence of the acute inflammation, also in children, repeated aspirations might be resorted to as often as any accumulation of pus may take place. This will obliterate the cavity, and if adhesions form between the pleural surfaces a cure is effected. This manner of aspiration might be termed drainage by aspiration, and is the only manner in which it should be employed in empyema. If the pus is fœtid, at subsequent aspirations the cavity may be washed out with Condy's fluid.

Various devices have been perfected to help surgeons in their work on the thoracic wall; one of the latest is Sauerbruch's air chamber to avoid pneumothorax in intrathoracic operations.

In the pneumatic operating chamber invented by Sauerbruch, this operator has made a study of the inconveniences and dangers which attend artificial respiration, making it necessary to combat operative pneumothorax, he proposes a method, applicable to human beings, resting on the principle of the constant maintenance of the difference of physiological pressure between that which is exerted within the bronchial tubes and that which is exerted within the pleural cavity. He makes use of a chamber in which the physiological lowering of the intrapleural pressure is obtained by aspiration of the air. In experimenting upon animals the head of the animal remains outside the chamber and is separated from the latter by a rubber ball; and within this chamber extensive resections of the thorax can be made without causing serious trouble in the circulation or the respiration, for the operator and his assistants can stand the conditions within the chamber. He constructed a large and a small chamber, the former differing from the latter in that on the wall, opposite the side on which is the patient's head, is fitted a cylinder in which the abdomen and the lower limbs are introduced. This cylinder is hermetically closed at the level of the lower opening of the thorax communicating with the external air; in this way the normal pressure is maintained in the pulmonary veins, while the pleural aspiration is diminished. In a second method it was sought to obtain the difference in pressure, not by exerting less pressure upon the lungs, but by increasing the pressure within the lungs. This method resulted in producing troubles in the circulation and in the respiration which were not present in the first method; Sauberbruch observed that the hyperæmia which accompanies the collapse of the lung plays an important part in the pathology of pneumothorax. In his chamber are a large electric lamp, telephone and all the paraphernalia of an operating-room; the glass walls can be washed and disinfected while spectators outside can watch the proceedings. The door is double, with an air space between. A dog was operated on under chloroform, the thorax opened and the lung seen to be on a level with the long incision made in the sixth left interspace, respiration remaining even and tranquil. The upper third of the stomach was drawn up into the wound and the œsophagus severed, the cardial stump closed with purse string suture and the upper stump implanted in the stomach wall to the right of the cardia. During the entire operation the lung retained its normal aspect, size and relations. It was pushed out of the way under a compress like the intestine during a laparotomy. Toward the close of the operation one of the aids left the room and neglected to see that the inner door was closed air tight before he opened the outer door. The air rushed in, the lung col-

lapsed and the respiration became rapid and jerky, but it lasted but an instant, as the door was shut at once and the pneumatic pump worked a little faster to restore pre-existing conditions. Gradually the lung filled out and expanded again. As the pressure was increased to a trifle over the standard 10 mm. the lung ballooned out, protruding from the incision. The pump was regulated, the lung resumed its normal place and the operation was concluded. It had lasted an hour. There were six persons inside the air chamber during the entire proceeding; while it was warm they were able to breathe, feeling the pressure only when the door was opened and then only in the ears. The pressure of 10 mm. is equivalent to an altitude of 900 feet, and the pressure in the room was very slowly increased to this point, and as slowly restored to the ordinary pressure. The point that most impressed him in the whole experience was not the absence of pneumothorax so much as the permanence of the calm, regular, normal respiration of the animal, notwithstanding the extensive breach in his thorax. Under these conditions open both pleuræ and resect the sternum and ribs almost to the spine; in short, remove almost the whole of the "thoracic cage," without interfering with the calm regularity of the respiration. The clinical experience to date with the pneumatic chamber has been 10 operations on human subjects, with four recoveries. The subjects were all in desperate condition, enfeebled by the pathologic processes, which included gangrene of the lungs, stab wound of the heart and cancer of the œsophagus. The phenomena observed in animals were reproduced in the human subjects under deep narcosis.

Incision and drainage for the relief of simple serous effusion is a procedure so disproportionate to the gravity of the affection that its adoption is not usual; but exceptional instances occur in which the usual methods are ineffectual and some form of drastic treatment is needed. Suppuration within the pleura and a chronic thoracic fistula are likely consequences which most of us would be slow to invite. Before resorting to incision, in every case give a trial to the "artificial pneumothorax" method, which can be readily carried out as a simple modification of the ordinary paracentesis, the fluid being allowed to escape by siphonage, while sterilized air or nitrogen is admitted to replace it and the puncture carefully closed. It is not unlikely that in most cases sufficient stimulation would be set up in the pleural membrane to reverse the direction of its currents, and that the lung would re-expand as the gas became absorbed.

Etiology and pathology of empyema is readily being investigated, but it has not received any addition of first-rate importance, although Cestan's exhaustive work is a valuable contribution to the literature of empyema, both acute and chronic, in which bacteriological questions are duly considered, but chief stress is laid upon the subject of treatment and of operation. Senn's experience in Camp Thomas forms the basis of a general view of the practical aspects of the pathology and of the treatment of empyema. Fraenkel's pneumococcus and Friedlander's diplobacillus possess feeble intrinsic pyogenic property, and suppurative pleuritis set up during a pneumonia usually results from a secondary or mixed infection with pus microbes. Often it occurs at the time of the crisis or a few days later. Thus while the lung may get well the pleura may become infected, as though more susceptible than the pulmonary tissues to pyogenic infection. Senn attributes an etiological share in the production of pneumonia and pleurisy to dust, which renders the epithelial layer of the bronchi more permeable to the entrance of microbes. Senn favors a preliminary aspiration, a free incision, to be made under an anæsthetic, a slow evacuation of the chest, and tubular drainage without irrigation at first; he often resorts to free irrigation of the pleura during the subsequent treatment, and uses the double drain (the patient being made to lie on the sound side), the fluid escaping through the second tube as soon as the cavity is full. Resection of ribs as a primary procedure is losing some of its popularity; thus various observers, such as West, believe that it is often superfluous.

Andrews, in a paper on "Rib Resection in Empyema," insists that resection is too often performed and but rarely needed; he favors irrigation, and in its performance he has found Hancock's double empyema tube excellent. His own single flanged tube can be made to close the pleura air tight, and if the plug is introduced into it, after several expiratory efforts at the end of forced inspiration, the surface of the lung is kept under suctional influence for hours. Irrigation is another subject upon which opinions are still divided; there is no question that cases do exceedingly well without it, and in view of the serious complications with which it is sometimes attended, its use might wisely be restricted to cases with special indications. In a case of Janeway a man operated upon for sacculated empyema three and a half months previously, lost consciousness, after introducing a wineglassful of the peroxide of hydrogen injection for a second and became a pale greenish color; on recovery his right leg remained numb and powerless for twenty-five minutes. Three days later a similar attack occurred, in which he lost power in the neck, the head dropped, and there was serious embarrassment of breathing. Janeway favors the embolic theory and that the emboli are air or gas.

Valvular drainage tubes devised from time to time for empyema have not found favor with surgeons, who generally regard a free discharging outlet, kept aseptic, as the great indication. The analogous varieties suggested by Hutton and Baylor are excellent; in Baylor's apparatus a branch tube, kept habitually ligatured, enables the external portion of the tube and its terminal valve to be frequently flushed with hot boric acid solution. Baylor claims for his method an efficient drainage, a complete exclusion of air, and an inspiratory negative pressure not otherwise to be secured. Van Santvoord has devised an improvement upon Hutton's apparatus for empyema which has given good results in his hands. In one case the discharge ceased and the lung was fully expanded four days after the operation. Where empyema exists on both sides of the chest the question arises as to whether they should both be operated upon one sitting or at an interval of time. This point is discussed by Randall, who in one of his cases opened both empyemata at the same operation.

As to pneumothorax due to bacterium coli, the case reported by May and Gebhart was that of a laborer, aged 43 years, who had suffered from pleurisy and pericarditis after being stabbed. Pneumothorax de-

veloped and was aspirated. The gas withdrawn burned with a good flame, and was found to contain hydrogen, nitrogen and carbon dioxide. The production of gas was traced to the bacterium coli. Pyopneumothorax, Kienbock's X-ray observations on pyopneumothorax are interesting, in connection with the pulsations which were visible o the fluorescent screen. Some of the oscillations were synchronous with the heart beat, others were due to the shaking of the floor. The operative treatment of pneumothorax is seriously discussed by West in connection with a case of pyopneumothorax of several months' duration cured by free incision. When pus has collected in the pleura its removal is indicated. But the risk of inducing suppuration by incision and drainage, in a pleura which previously contained serous fluid only, is hardly justifiable before we have used the less severe method by simple evacuation of the fluid and its replacement by aseptic air or nitrogen.

In the use of the Rœntgen rays in the diagnosis of affections of the pleura, Bouchard and Claude found that the shadows of thickened pleural membranes are less dark than those due to fluid, but they are permanent; there may, however, be no means of distinguishing them from the opacity produced by pneumonic consolidations. The dense shadow of a fluid effusion, occupying the base, veils the diaphragm and merges into the darkness of the abdominal area. Its upper boundary is curved, or slants from the auxiliary line to the spine. From day to day the shadow of the common basic effusion or of the more central shadow of an encysted interlobar effusion varies considerably. In pneumothorax an abnormal transparency of the greater part of the air containing pleura, in which the collapsed lung alone casts a shadow, and a depression of the curve of the diaphragm. When a serous or purulent effusion accompanies the pneumothorax the opacity due to the fluid changes its position with each change in posture, always occupying the lower section.

The varying conditions associated with the pressure or the absence of an external wound or of an opening, which may be valvular or non-valvular, at the surface of the lung, are analyzed, and West points out that in pneumothorax the pressure conditions during inspiration and expiration require to be considered separately. (a) The Inspiratory Pressure. In the early stages as air enters the pleuria, the pressure is equal to that of the atmosphere on deep inspiration, and it tends to remain about equal with it. If it becomes permanently raised above that of the atmosphere the presence of fluid is indicated. (b) The Expiratory Pressure of pneumothorax is always positive in the early stages. The collapse of the lung is in great part due to the compression which this exercises, and the displacement of the mediastinum is also assisted, though not produced, in this way. (c) The Respiratory Oscillation is the difference between the inspiratory and the expiratory pressure. This tends to be reduced, since the affected pleura is in the position of maximum inspiratory distension, while, on the other side, for various reasons, including the reduced elasticity of the sound lung, the expiratory excursion is diminished. Thus the respiratory oscillation, as a whole, may be considerably below the normal. From a careful analysis of his observations, West is led to the conclusion that the intrapleural pressure in serous effusions are not so simple as they are thought to be, and that the whole subject requires a great deal of investigation. The respiratory oscillation is generally reduced in serous effusions and may be completely absent. The action of the lymphatic pump must greatly suffer in consequence. The intrapleural pressure in empyema is always positive and sometimes considerably raised, while the respiratory oscillation is practically absent; this high tension is an important fact. It points to the formation of abscess as a vital process independent of the simple laws of gravitation and of pressures which apply to the simple exudations.

THE NEWER SURGERY OF THE INTESTINES AND LIVER.

BY A. R. WILLIAMSON, M.D.

PART I.

IN injuries to the liver many good authorities now advise immediate laparotomy if symptoms of hæmorrhage into the peritoneal cavity develops; the sooner operation is performed the greater being the chances of recovery. If the blood apparently come from the liver, or a rupture of this viscus is discovered, the bleeding should be temporarily arrested by sponge pressure, or by pressure on the hepatic artery and portal vein, which can be done either by passing the hand underneath the inferior margin of the right lobe, placing the forefinger in the foramen of Winslow, the thumb in front of the lesser omentum, and applying pressure. Waring uses a compressor for the hepatic vessels; he applies it in this way: the blades are separated; the distal blade being placed in the foramen of Winslow, the proximal is put in front of the gastro hepatic omentum, and then the two are approximated until the circulation in the vessels is stopped. Waring has used this instrument on dogs and has found it does well, for it does not take up as much space as the hand and is more efficient. Now remove all blood clots, while any blood vessels which are visible on the surface of the wound should be picked up with forceps and ligatured with silk; then the pressure on the vessels may be relaxed to make sure that no large branch of the artery or vein has escaped observation; the margins of the rupture being brought into opposition and fixed by the insertion of a series of sutures; a fully curved Hagedorn's needle with a blunt point should be used; medium sized silk is the best suture material, as catgut is liable to slip; but be careful not to use too sharp a needle, for it may pierce the hepatic vessels. Insert the sutures about a third of an inch from the margin of the rupture, passing down through the liver tissue to the bottom of the wound and then through the liver tissue on the opposite side until it emerges at a point one-third of an inch beyond the other margin; these sutures should be inserted about a quarter of an inch apart and all should be inserted before any are tied; considerable care is required in tying the sutures, for they may cut through. For any slight hæmorrhage from the margins of the rupture or the suture apertures in the liver, a strip of aseptic gauze should be carefully packed over the bleeding part and one end brought out of the abdominal wound. Should it be impossible to bring the margins of the rupture together the vessels must be ligatured and the opening packed with aseptic gauze.

Ptosis of the liver is now attracting much attention; in this condition there is a sinking down or dropping of the liver in the abdominal cavity, for which "ptosis" is a better term than such others as "wandering," "movable," "floating," although "displacement," "dislocation," "prolapse," are allowable. As Spencer has shown, with or without displacement of the main mass of the liver there is a tongue-like projection downward of the right lobe, in front of the kidney toward the iliac fossa. This has been called the "floating," "appendicular," "linguiform," or "Reidel's" lobe. Hepatic ptosis was first noted by Cantani in 1865, but the chief knowledge of this and other visceral ptoses is due of course to Glénard. It is necessary to study the anatomy of this region to understand the condition; the liver is chiefly held in position by the vena cava and by intra abdominal tension, the ligaments appearing scarcely strong enough to support entirely so large an organ. The vena cava being the fixed point on which the organ rotates, it is the anterior edge which comes to point downward, while the upper or convex surface looks forward, and as the right lobe is heavier than the left, the former sinks, while the latter, on the left side of the vena cava, remains in position; not only is the right lobe tilted downward and forward, but its edge is also thinned out and prolonged at the expense of the rest of the lobe, undergoing a partial constriction by fibrous thickening of the visceral peritoneum in a transverse line so as to appear pedunculated. This condition is seen generally in women; out of the eighty cases collected by Glénard only seven were men, and it appears to be due to a general relaxation of the abdominal tissues. Treves does not consider that tight lacing of corsets a cause, as this constriction falls below the mass of the liver, and the furrows met with on the convex surface of the gland he holds, with Turner, to be congenital. In twenty-six out of Glénard's eighty cases there were evidences of liver disease, such as gall-stones, cirrhosis and hypertrophy, in one case cancer, in another hyatid cyst. Of the seven males, one had cirrhosis, a second hypertrophy from malaria, and a third enlargement with ascites from heart disease In fifty of the cases the liver seems to have been sound, but some of the patients had suffered from attacks of jaundice or colic. Glénard examines such cases by grasping the patient's loin with the left hand, while the right hand pushes up the intestines, thus the edge of the liver with the "floating lobe" is detected by the left thumb; a distended gall bladder and a floating kidney may co-exist, and the differential diagnosis is difficult to complete without an exploratory incision. The symptoms caused by hepatic ptosis are: dragging sensations, indigestion, or attacks of colic, jaundice from kinking of the bile duct; also others of a neurasthenic nature. The treatment generally advisable is a well-fitting belt, combined with the relief of dyspepsia, constipation and other nervous symptoms.

An incision in the right linea semilunaris is made and the liver fixed in position by about ten sutures passed deeply through its substance so as to unite it to the abdominal wall; at the same time gall-stones are removed. After operation, the patient should lie in bed for a month or six weeks, while more severe operations, such as the removal of the floating lobe, are not advised by Treves.

In hepatic suppuration, pain in the hepatic region after sudden movement or muscular effort brought on by succusion is the chief and significant sign; the accompanying fever is of no special type and may be absent. Malbot did not observe peritoneal friction, jaundice, pulsations of the liver, or hypertrophy, but deformity of the organ as the abscess bulges. Any depressing factor to the human economy is liable to produce hepatic suppuration; the diagnosis is completed by puncture; then a free incision should be made, and the liver pressed into the wound by the assistant compressing the patient's sides, for there are rarely adhesions. The cavity should be washed out, and several large drain tubes inserted. Manson's method is a much less severe operation and therefore more suitable for exhausted patients, consisting in finding the abscess by an aspirator, then passing in a trocar and cannula, withdrawing the trocar, passing a tube into the cavity through the cannula, withdrawing the cannula, and connecting a length of tube to the drain so as to obtain a siphon action. In cases where the abscess is near the surface and the patient in fair condition, a simple free incision, wiping out of pus sloughs and insertion of tubes or gauze is sufficient to produce a cure.

In gummatous hepatic tumors iodide of potassium is excellent. Robinson has described a case where a large gummatous mass had obstructed the common bile duct, while in another case a gummatous mass united the kidney to the liver; for seven years this patient had hæmaturia intermittently, so that seven years ago he was advised to have his bladder explored for a suspected villous tumor, but he refused and subsequently he had signs of chronic intestinal obstruction and wasting. Although there was absolutely no history of syphilis, after scraping out much of the gummatous sloughs, the administration of iodide of potassium led to the patient's temporary improvement.

Gall-stones in young children occur occasionally. We must remember this in cases of colic with screaming fits and drawing up the legs, as, of course, also of jaundice. Gall-stones are found in children dying of wasting diseases where probably inspissation of the bile and feeble muscular movements of the diaphragm dispose toward their formation. In some cases a gall-stone has formed behind a stricture of the common duct, of congenital or other origin. The possibility of a successful surgical operation exists in these cases, and therefore a timely diagnosis is vital. A marked case of sixteen years' standing was relieved by Treves, who did cholecystenterostomy on a girl of nineteen. Her history showed that for sixteen years she had been deeply jaundiced, had stools without bile, and the urine deeply bile stained. Her face was swollen, expressionless, resembling myxœdema, and her intelligence very imperfect. She was subject to severe febrile attacks with vomiting, dyspepsia and constipation. At the operation the common duct was found to end in a nodule, with marked distension of the biliary system behind. The symptoms gradually disappeared following the operation.

Radium is still expensive. One gramme (15 grains) costs in Paris $80,000. When to this is added the import duty of twenty-five per cent. the commercial value of one grain of radium in the United States exceeds $5,000.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 69 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, OCTOBER, 1906

RAILROAD ACCIDENTS.

THE slaughter on American railroads is terrific and terrifying. In our happy go lucky way of running railroads not much regard is paid to protection of human lives if it interferes with economy of management. This statement applies with much more force to Western railroads, but the Eastern lines have by no means gotten the beam out of their own eyes.

It was said in jest a few years ago that the only way to obtain safety on the railroads would be to tie a director to the cowcatcher of each train. This statement made in jest possesses far too much of grim truth in it to be pleasant. Railroads are straining every nerve to increase their earnings and any economy which reduces running expenses is allowed. If the companies were compelled to pay enormous sums for each life sacrificed on their roads, these accidents would largely cease.

It is possible now to speak intelligently of these deaths and their causes, for by the law of March 3, 1901, each road is compelled to send to the Interstate Commerce Commission at its office in Washington a monthly report, under oath, of all collisions of trains or where any train leaves the track and all accidents occurring to passengers or employees. They must also give the causes of each accident and the surrounding circumstances under a penalty of one hundred dollars a day as long as they fail to comply after the time specified. The roads are protected by the fact that such reports cannot be used as evidence against them.

In pursuance with this law the Interstate Commerce Commission has just issued "Accident Bulletin No. 19," which contains an account of the accidents occurring in January, February and March of this year. According to this report, 274 people were killed and 3,969 were injured in this period in train accidents. But taking accidents of other kinds there were 1,126 killed and 17,170 injured in three months' time.

Surely a business that kills four hundred people a month and injures nearly 6,000, or two hundred a day, demands some attention from our governing authorities. We read with horror of the "General Slocum" disaster where a thousand people die at once, but because their deaths are spread over a longer period, we note this information as interesting and speedily forget it.

It must be remembered that these accidents are serious affairs, for no slight injuries are reported. If the employee can work three days in the ten following the accident, his case is not reported to the commission.

Taking up the question of passengers in this period, forty-six were kiled in collisions and nine hundred and thirty-nine injured. The commission also classes as passengers men carried under contract, as postal clerks, express messengers and Pullman employees, but these are not included in the forty-six mentioned. Of this latter class ten were killed and one hundred and eight hurt, making a total of fifty-six killed and a thousand and forty-seven hurt. In the same period, eighty-five trainmen were killed in collision and seven hundred and fifty-five hurt, which, considering the relation of trainmen to passengers, is a very heavy percentage. Derailments killed five passengers and forty-one trainmen and hurt seven hundred passengers and three hundred and sixty-five trainmen.

When it comes to work around trains, handling dynamite in comparison seems a very trifling occupation. Forty-three trainmen were killed this way and four hundred and sixty were hurt. Doing "other work" about trains took forty-one trainmen to their final reward and put twenty-six hundred and ninety-four in their beds. Surely such work should not be allowed to be so dangerous.

The other details grow grewsome and monotonous; thirty-one passengers were killed getting on or off of cars, while one hundred and fourteen trainmen so died, and twelve hundred were hurt. The Interstate Commerce Commission does not include in these tables the "yard trainmen" or other employees, but they make a very respectable mortality by themselves. Thus forty-one hundred and sixteen men are hurt "tending switches," etc., and forty-six are killed.

The Interstate Commerce Commission states that "many of the present totals are smaller than those in the corresponding columns three months ago, but this is a comparison that affords scant ground for congratulation." They report the details of the worst accidents, showing that gross carelessness is permitted by the companies. Thus collision No. 29, which caused thirty-four deaths and twenty-four injuries, was due to the fact that a telegraph operator, who had been on duty all day and more than half the night at a lonely station, fell asleep. On awakening he misinformed the train despatcher as to what had occurred while he slept. There were no rules to govern his case and any time an overworked operator

falls asleep on this line, this accident is likely to recur. In this particular case the operator had been on duty nineteen consecutive hours. Heaven alone knows how many more hours he would have been on duty if death had not released him.

Again there were disagreements or misunderstandings between employees; thus in one case the conductor failed to arrange for protection; at the same time the flagman mismanaged; the engineer forgot to test his air brakes and the block signal operator gave a false clear signal. Surely there was something rotten in the state of Denmark here. Again the engineer was asleep or overlooked orders, or the conductor forgot schedules or neglected to identify trains, and so on the wretched history runs. As to derailments, matters are even worse; thus spreading rails, broken frogs and rails, wornout rails and tires on driving wheels, etc., are all to blame, showing carelessness or neglect on the part of the management.

The commission makes no comments on these causes and cases beyond mildly suggesting that "the government should investigate the disastrous collisions and derailments and set forth in unmistakable terms their causes and remedies." Surely this is a lame and impotent conclusion. Again as with the insurance companies, railroads are niggardly with their surgeons. At a recent accident on the Pennsylvania Railroad at Paoli, Pa., where seven men were killed while sitting quietly in their train at the station waiting for it to start, the company did not have a physician between Philadelphia and Harrisburg available to send and sent out the command, "Call in the local doctors," to which behest the local doctors responded promptly, yet were never reimbursed for their work of caring for the injured.

If the Pennsylvania Railroad, which is regarded as the standard, is so niggardly, what of the other lines?

We hold human life too cheap in this country; we read with no sense of responsibility of these railroad accidents and thank our good fortune that we escaped, but this is a problem which should interest even the most selfish individual, for he will never know when he stands in its shadow. This slaughter is of to-day. It did not occur in ancient Rome or in the Middle Ages, but it is going on now at the present moment.

Physicians in Public Life.—The *Jour. A. M. A.* states that the authorities of Baden in Germany are considering the organization of a council comprising physicians, dentists, veterinarians and druggists. This organization will deal with matters affecting the profession and the public health in general. Membership in the medical chambers in Germany is compulsory on the physicians in a district where one exists. The new organization is planned along the same lines, only it will embrace the allied branches. It were well if our fraternity in this country took a little more interest in the body politic.

EXPERT TESTIMONY.

EVERYONE will recall the case of a man named Tighe, which was recently ventilated in this community. This man was asserted to have been wrongfully declared insane by several alienists of very high standing. No one, of course, imputed to these eminent men anything else than possible errors in judgment such as may occur in any department of medicine, but particularly in its most difficult branch, that of psychiatry. However, the result was to bring up again a discussion of the whole vexed question of medical expert testimony. Perhaps all the phases of this question are familiar to our readers. We have ourselves distinctly presented them (January, 1904). We would here emphasize but one of these phases—that of the manner in which many of these trials are proceeded with.

In the first place, it is an exceedingly difficult thing, in any given case, to reach the truth, the whole truth, and nothing but the truth. That is what the judge, the jury and the lawyers (all of them officers of the court) are engaged, by their solemn oaths, to ascertain. That most judges seek this end, no one doubts; that the jury generally try to fulfil this obligation, is equally in evidence; how often the lawyers seek to further this simple object, let those who read the lay papers and who know anything about court proceedings, conclude as they think best. The court clerk with perfunctory monotony, administers to each witness, expert or otherwise, the above-stated formula.

Yet with what zeal is the truth, the whole truth and nothing but the truth sought. Tom Reed, of blessed memory, has well said that the simple, plain truth is the rarest thing in God's universe; there is on the other hand, nothing quite so common as part-truth—nor we would add, nothing so misleading. The lawyer, from the very start, impresses upon the expert, whom he engages, that he is a partisan, that everything short of absolute iniquity that can be done, must be done to save the case for which he is retained. When the expert is put upon the stand his lawyer shows his dexterity in bringing out statements helpful to his client, in suppressing such as would hurt his client. When he cross-examines the expert of the opposite side, he seeks by ridicule, by invective, by inuendo, to belittle harmful facts, to distort the spoken truth, to suppress the half truths. Oftentimes the lawyers, quite without rebuke from the bench, descend to puerile blackguardism. Reader, if you think this is too strong a term, consult Mr. Wellman's book on Evidence. The judge, either does not or cannot, to any measurable degree, bring a decent order out of the chaos into which the case becomes plunged. The jury is consequently befuddled.

And the most unjust and the most ridiculous as-

pect of the whole proceeding is that only upon the medical expert witness, and no one else, is any blame laid.

A VACATION CITY.

IT is refreshing to come upon any ideas tending to the physical betterment of the race. Time was, and that not so long ago, when factory hands and like workers had no thought of vacation-time, but were at labor (except when they were on strike) six days in the week, throughout the year. Now, however, the wholesome custom is gaining place by which all workers, of whatever degree, may have surcease for a little while during the heated term. For instance, three thousand factory hands employed at Dayton, O., camped in August last on the shores of Lake Michigan. This was a cooperative camp, arranged and managed by the Men's Welfare League. Each chapter of this League got a ten days' outing for the cost of one week's board; and the contract was that the picnickers were to be carried 200 miles from Dayton to the camp, and back home again, to have tents and cots furnished them, and three meals a day during the whole time in camp—all for $5.75 per individual.

This excellent institution was first organized in the factory of a cash register company; and its object was "the betterment of working conditions in Dayton and elsewhere, and the securing of civic and educational improvements in our home city." And it was believed that one of the best means to this end was to improve the conditions of working people by giving them yearly vacations. And no one would doubt that this object was being fulfilled who saw "the happy campers resting beside their shaded tents, bathing in the cool surf of Lake Michigan, playing outdoor games, and dancing to the music of the League's band on a big open-air platform."

It were well, indeed, if this plan could be duplicated in every city and town in our country. The bodies of these good people would thus become revivified and strengthened to endure the hardships of the year. There would be less sickness and distress; and consequently much greater contentment and enjoyment of life. Perhaps by this means would strikes become a thing of the past; and walking delegates an unpleasant memory.

Preserved in Alcohol.—The French village of Chailly is recorded to be the heaviest consumer of alcoholic liquids in proportion of any village in France. It is also a fact, states the *American Wine Press*, that this little hamlet contains the largest number of octogenarians.

NEW YORK CITY'S GARBAGE.

THE question of the disposition of the garbage which accumulates in and about the metropolis is as difficult to deal with as it is unpleasant to discuss. But one definite conclusion has been reached by all concerned—that the present method of disposal is the very worst conceivable. Because of the destruction by fire of the Barren Island plant, the city has resumed the disreputable practice of dumping its garbage at sea, with the result that fauna and flora of the greatest variety and picturesqueness now adorn the beaches of Long Island and New Jersey. All this is in very truth most unhygienic and disgusting; and a condition of things which no European community would endure for a moment.

The best methods of treating garbage and refuse are by burning and the commercial utilization of the heat and residium. The incineration should be complete, so that "malodorous reek" shall not result; and the result should be power, such as Commissioner Woodbury converted into the electricity by means of which the Williamsburg Bridge is now lighted.

The *Evening Post* suggests the appointment of a special commission to deal with this matter, which involves so largely the health and decency of New York City, with that of adjacent communities extending many miles up and down the coast. Such a commission would find the city giving away (through the picking privilege) and throwing away (by the dumping of ashes) the fuel that would burn all of its garbage and light all of its streets. As it is now, however, the city is polluting its own waters, and distributing nasty rubbish upon its seaside pleasure grounds. There is here a dreadful lack of simple business capacity. The problem, however, is well within the scope of modern sanitary engineering; and a satisfactory solution might be hoped for if the city would but betake itself to competent advisers.

TO OPERATE UPON MENTAL DEFECTIVES.

IN a paper on *The Sterilization of Certain Mental Degenerates*, read before the Section of Psychology at the recent meeting of the British Medical Association in Toronto, Dr. Robert R. Reutoul, of Liverpool, presented a number of arguments calculated to justify the course he proposed; some of these we consider here.

Reutoul presents statistics from various sources, giving conclusions as various. In one table the proportion of insane to the right-minded is one to 657; in another one to fifty; and between these all sorts of proportions are stated.

Evidently these statistics, as is so often the case, depend upon definition, the industry and conscience of the compiler, and other indefinite and uncertain factors. Besides, the question of statistics always depends largely upon the point of view. Only the other day a celebrated alienist expressed, in a respectable publication, the opinion that we are all of us more or less insane. In any event it may fairly be agreed that the proportion of the insane, or at any rate of the feeble minded, in any community is very large.

Now, Dr. Reutoul would "sterilize" those manifestly defective in mental make-up, in order that they may not transmit their stigmata to an innocent and unoffending posterity. He would not mutilate anybody. What he would do is this: In the female he would excise and ligature parts of the fallopian tubes. In the male degenerate he proposes one of two operations. He would either excise and ligature parts of the nasa deferentia (vasectomy); or he would follow the same course with regard to the spermatic cords (spermectomy). Experiments upon animals have shown that when the vasa deferentia have been divided and ligatured, the testes do not atrophy; and there are sexual desire and power, but no ability to procreate. After spermectomy there is no sexual desire, or potency, or power to impregnate. To the latter operation Reutoul would subject lunatics, epileptics, idiots, confirmed criminals and inebriates and habitual vagrants.

But, in order to perform these operations, the surgeon would, in every law abiding community, have to receive the sanction of the authorities. In England Reutoul would empower the Lunacy Commissioners to act. But every one will surely see that to empower any official body with regard to such proceedings would be a most dangerous matter, for many reasons; it were superfluous to give space to an amplification of this statement.

A COUNTY BACTERIOLOGIST.

ONTARIO County, New York, has recently secured the necessary legislation to appoint a county bacteriologist, at a salary of fifteen hundred dollars. Under the supervision of the health officers, the services of the bacteriologist will be free to all physicians of the county.

So far as we are aware, this is the first instance of the institution of a bacteriologist by a county, in the state, and, probably, in the whole country, excepting in a few instances in which a county is legally or practically a city. Ontario County can, therefore, take considerable pride in having established a wise precedent. Ontario County has a population of 50,000, about the average for the counties of New York, outside of those containing cities of considerable size. Ontario County has one city, Geneva, of about 11,000 inhabitants, the next most important town being Canandaigua, an old and historic village of about 6,500 inhabitants. Aside from several villages and hamlets, it is a farming community.

We mention these statistics as significant. The securing of a bacteriologist was in no sense a political job, and, indeed, the incumbent is selected on account of professional fitness, from a distant place. The salary paid, though not perhaps adequate from the professional standpoint, is as high as that paid by all but the largest municipalities and best endowed colleges, and compares favorably with salaries paid by local governments for clinical and executive services by medical men. The expense, though less than five cents per capita per annum, inclusive of laboratory expenses, is still a considerable single item in the tax budget for a small county. We are informed that the appropriation was obtained without difficulty and solely on the merits of the case, although the fact that special legislation was necessary would have afforded an easy excuse for delay and obstruction on the part of the supervisors. We have known of large and wealthy cities, in which similar projects have been blocked for political motives under the plea of economy.

Altogether, it is instructive and gratifying to find a community in which the influence of the medical profession is so great and in which the public sentiment, representative of a population largely agricultural and not of great wealth, is so far sighted. Speaking broadly, this precedent for the United States has been established by the country physician and by the farmer, although the terms do not apply to all, either of the profession or of the laity.

THE RIGHT AND THE LEFT LIVER.

DR. H. SEREGE, of Vichy, contributes to the *Revue des Maladies de la Nutrition*, March, 1906, a rather extensive article on the distinction of function of the right and the left liver. The conception of this functional independence dates back to Glenard in 1890, but Serege claims to have presented the first scientific demonstration to the *Journal de Medicine de Bordeaux* in April, 1901. The gist of the whole matter is the claim that the blood in the portal trunk is not thoroughly intermingled, but that the blood from the splenic and inferior mesenteric veins, with that of some small branches mainly from the stomach enters the left liver, whereas that from the superior mesenteric vein enters the right liver. The division into right and left liver, following the distribution of the main divisions of the portal trunk, is traced along the biliary fissure to the point

of discharge of the hepatic veins into the vena cava. Thus, right liver includes right lobe and lobus spigelii; left liver left lobe and lobus quadratus. The lobus caudatus is not mentioned, but apparently belongs with the right liver.

Into the right liver drains the blood from the small intestine, rich in nutriment and comparatively free from toxic matters; into the left liver drains the blood from the stomach, spleen and colon and rectum, relatively poor in nutriment and rich in toxins, including exogenic injurious substances for the stomach or even, occasionally, gross poisons.

Silvestri (*Gaz. degli Osp.*, 1905) confirmed Serege's experiments that aniline dyes followed the vascular routes described, and Pincherle, of Bologne, in a monograph published the same year, found that cellular necrosis located in the liver in similar relation to the application of phosphorus to the ailmentary canal, between ligatures. Milne Edwards, Carl Vogt and Yung in their comparative anatomies, describe a complete independence of portal and biliary channels for the right and left portions of the liver of pigeons and some other birds. Brissaud and Dopter claim that the lobules of the left liver are much smaller and more numerous in a given area than those of the right in man.

The veins draining the liver enter the vena cava at different angles, the right at an acute angel, the left at nearly a right angle (75—110 degrees) so that the circulation in the latter is physiologically impeded. Soulé and the author found that potassium ferrocyanid passed through the right liver in 45 seconds, through the left in 95 seconds. The importance of a relatively long sojourn of blood containing toxic matters, is obvious. Silvestri has also corroborated the author's statement that, owing largely to this delay of the circulation, glycogen is present in greater abundance after the period of intestinal digestion, in the left than in the right liver.

This conception of a distinct division in the physiology of the liver may be characterized as important if true. It must be conceded both by the claimants and by their critics that the division cannot be absolute. An exact anatomic line cannot be drawn between the areas of venous drainage and supply, indeed very free anastomoses exist. Some intermingling of liquid or semi-liquid contents in any container is inevitable. Thus, on the one hand, a sharp contrast cannot be made between the nature of the substances liable to be carried to the liver (or livers) from the respective drainage areas of the splenic and inferior mesenteric veins and of the superior mesenteric veins; and, on the other hand, even if this sharp contrast were possible, some mixture in the portal trunk would be inevitable. Solid particles, as of aniline dyes, would be much more likely to follow lines of current without crossing over, than would ordinary liquid ingredients.

The mere fact that notable quantities of glycogen are found in all parts of the liver under the same circumstances and that both right and left portions contribute to the formation of bile, as also the newness of the discoveries of important histologic differences between these two portions, are against the theory. The only instance in physiology of a practical distinction in currents without a demarcation by walls, is found in the circulation through the fœtal heart. Here, the blood moves under quite strong pressure and is guided so that the distinct currents retain the impetus with which they leave the nozzles of vessels. Even with these factors, considerable mixture occurs. In the portal vein, the mechanic conditions are very different: the stream is comparatively slow and there is no special provision in the way of valves, or direction of currents, to prevent intermingling. The conditions, indeed, are approximately what occur in a river formed by the union of two principal and a few small tributaries, and soon branching again, as about an island. Here, however, the question of absolute dimensions is important. Two streams of water joining, may preserve their characteristics of color for many miles, but if we reduce the streams to a fraction of a centimeter, there is not a corresponding diminution of the strip of mixture. In several instances, we have analogies for the results of the experiments with aniline emboli. Inspired foreign bodies tend to enter the left bronchus, cerebral embolism is usually right-sided, septic involvement of the liver after dysentery is usually right-sided (contrary to what should be the case if dysentery is essentially a colitis and if Segere's theory is correct) and yet, in the former cases there is no corresponding physiologic distinction as to air and blood entering the respective areas of supply.

Segere quotes Glenard as claiming a distinct right and left pathologic reaction in the liver, corresponding to conditions in the two portal areas. As we recall Glenard's writings on this subject, he does not go so far as a clinician, as would be necessary to give support to Segere's claims and yet, he goes farther in the description of notable pathologic differences according to portion of liver affected by the portal circulation, than do most authors. The subject is interesting and deserves further study, but we can scarcely regard the bilateral hepatic theory except with scepticism.

Japan had 35,685 doctors in 1904; yet, states the facetious *Sun*, the population of the empire is steadily increasing.

BIBLIOGRAPHICAL

American Practice of Surgery. A complete System of the Science and Art of Surgery. By representative surgeons of the United States and Canada. Editors, Joseph D. Bryant, M.D., and Albert H. Buck, M.D., of New York. Complete in eight volumes. Profusely illustrated. Volume I. Royal octavo, 818 pages. Price, muslin, $7; leather, 8; extra half-levant morocco, $9. Sold only by subscription. New York: William Wood & Company.

The publishers of this gigantic undertaking say in their announcement that:

"Although other attempts have been made in recent years to publish a book which should faithfully record the part taken by Americans in advancing the science and art of surgery, and which should give an authoritative picture of surgical practice as it is carried on today by the recognized masters of the art, time has shown, as it seems to us, that all these efforts were made somewhat prematurely. It is our present belief that only within the last two or three years has the practice of surgery in this country reached such a mature stage of development that one might reasonably expect to secure for the contemplated book the desired character of authoritativeness, and also might anticipate that this character would possess some degree of permanence. It is with these ideas in mind that we have decided to undertake the publication of the "American Practice of Surgery;" and, as the first step, we have commissioned Dr. Joseph D. Bryant and Dr. Albert H. Buck, of this city, to act as the editors of this important treatise. These gentlemen are so well known to the profession at large—the one as a teacher and author in surgery of established repute, the other as an editor of wide experience—that we do not need to say anything further in regard to their fitness to be at the head of an enterprise of this nature. A survey of the list of writers whom they have invited to contribute the articles of which this great work is to be composed, affords convincing evidence that the men selected are among the very best to whom such responsible tasks could be entrusted.

"We have had the present scheme under consideration for several years and have become more and more convinced, as the time for carrying it into effect approached, that it would not be practicable to cover the entire range of surgery, in a fairly thorough fashion, within the limits of a series of only five or six volumes of the usual cyclopædic form. After very careful consideration, and with the full approval of the editors, we have decided to publish the work in eight royal octavo volumes; a total of more than six thousand pages. Within these limits we believe that it will be possible for our contributors to set forth the results of their extensive experience with such wealth of detail as to render the new "Surgery" simply indispensable to their less experienced professional brethren; and in these days of specialized work the most experienced surgeons must recognize the fact that even they are at times in need of additional information in many fields of surgical work.

"The material contained in 'American Practice of Surgery' will be entirely original, written for this work alone, and naturally embracing much that has never before been published.

"No foreign writers have been invited to take part in the work, and it will, for this reason, be distinctively American in character.

"Illustrations in medical works are of the greatest possible assistance when wisely employed to elucidate the author's meaning, and we propose to introduce them liberally in this work. As regards execution and value they will be of the highest character.

"The work will be printed from plates made from specially cast type, and printed upon paper of a quality to combine perfect press-work with ease in reading."

The first volume of this royal work is now before us and it fully bears out the promises of the publishers.

The introduction upon "The Evolution of American Surgery," is from the pen of the veteran surgeon, Dr. Stephen Smith, and no better selection for this duty could possibly have been made.

The articles are all ably written by specialists in the particular lines. The illustrations are excellent, the type is of good size for easy reading, and the paper is heavy and durable.

We may truthfully say that the work, in our opinion, is perfect in every particular, and it will certainly find its way into the library of every surgeon at least.

A Non-Surgical Treatise On Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A.B., M.D. Third edition. 12mo, 238 pages. Chicago: Rowe Publishing Co., 1906.

The great demand for this little book shows that it fills a want of the general practitioner, to whom we commend it.

The present edition contains much new matter, including three new methods of treatment which have not previously appeared in print. There is an illustration of a new, simple and inexpensive instrument, which will supply the place of the endoscope in many cases, and will be found of practical use. The subject of which it treats is important, and worthy of all the non-surgical treatment that can be devised.

Before and After Surgical Operations. A Treatise on the preparations for, and the care of the patient after operations. Including Homœopathic Therapeutics. Written with special reference to the needs of the general practitioner and the hospital interne. By Dean T. Smith, B.Sc., M.D., professor of surgery and clinical surgery, University of Michigan, homœopathic department, Ann Arbor. 260 pages. Cloth, $1.25 net. Postage, 8 cents. Philadelphia: Boericke & Tafel, 1906.

The title of this little book sufficiently explains its province, and it will be found useful by those for whom it was written.

Science is declared by Huxley to be nothing but trained and organized common sense, differing from the latter only as a veteran may differ from a raw recruit. "The vast results obtained by Science are won by no mystical faculties, by no mental processes other than those which are practiced by every one of us in the humblest and meanest affairs of life. The man of science, in fact, simply uses with scrupulous exactness the methods which we all, habitually and at every moment, use carelessly."

CORRESPONDENCE

MEDICAL ERRORS AND ABUSES.

To the Editor of THE MEDICAL TIMES:

Every doctor will admit that there are plenty of errors and abuses in the practice of medicine. But each of them will make the admission with more or less of a mental reservation having reference to the mistakes of "the other fellow." It seriously becomes us, as representatives of a learned profession, to "face the music"—to "take our medicine," to "whack up" in the contest for truth. Let us lay our hearts in touch, and each look his conscience in its face. It is unworthy of the ethically legitimate physician to shy at unpleasant truths because of their accusing relation to himself. If we only *could* banish that partisanism (essentially wrong) which constrains us to defend a proposition more for its *own* sake than for truth's sake! Of course I am "in the same boat" with the rest, and I realize that I am much more fallible than many who will read this article. What then? It simply devolves on him to show me *my* errors. That is the only way there is of getting at what we are all seeking—THE *truth*.

I want to submit, for your fair consideration, a scheme which, as I sincerely believe, embraces every fact of therapeutic philosophy. It is scarcely necessary for me to say, in this connection, that if there is no therapeutic philosophy, we would better quit the practice of medicine and go to doing something useful—say, sawing wood. A science, to be such, must be based on axioms and definitions. This will not be disputed. Science is at least the valet of philosophy, and if therapeutics is a science, there is a philosophy of medicine.

I shall submit herewith three propositions which, I insist, are axioms. They underlie every conceivable phase of therapeutics. They *are* axioms, because all practical tests respond to and reciprocate with them. Here is AXIOM 1st:

The right drug, given in the right quantity, to the right patient, at the right time, makes for cure.

No drug-using doctor will dispute the axiomship of that proposition. It's axiomship will be disputed only by drug nihilists, and to such this axiom will not appeal, of course.

AXIOM 2d:

Food is food, and drugs are drugs.

The mere phraseology of this proposition certifies to its axiomship. Yet this is *practically* denied by nearly all doctors. The difference between a food and a drug is this: a food is assimilated, a drug is not assimilated. True, there are foods that contain drug elements, which, when ingested, are capable of isolating themselves. There is a diuretic principle in asparagus, for instance, which, as a drug, performs its office, and is eliminated. This principle is a drug, and therefore is not assimilated. Only that which adds itself to the tissues is food. It is easily seen that there is a strict line of demarkation between a food and a drug. They cannot at once be *different* and the *same*. Assuredly, the axiomship of the proposition—a food is a food and a drug is a drug—stands.

This axiom inexorably "cuts out" the tissue-food fallacy. There is no *direct* way under heaven of feeding a tissue. If you would feed a tissue, you must do it *indirectly*, through the ingestion of assimilable material, *i.e., food*. Schuessler was *wholly* right, or *wholly* wrong—he could not have been *partly* right. Of course he was wholly wrong; but, from an inherited method of thought, the great mass of the profession tacitly affirm that the "biochemic" system is *partly* right. Therefore they continue, as of old, to give iron in anemia, lime in rickets, phosphorus in neurasthenia, etc. The practical fact that not one of these drugs given for these conditions was ever known to do any good has made no difference. The force of orthodox conservatism is more than a match for a new truth. True, it does not override new truth forever, but—*nearly*.

Every doctor who gives iron in anemia is practising Schuesslerism—he is confessing that the "biochemic" system is wholly right, and is therefore the *only* true system of medicine. Dear doctor, I submit that this conclusion is logically inescapable.

Even if there were such a thing as idiopathic anemia—and it is about certain that there is not—to give iron for it is to attempt *direct* tissue feeding. But anemia is only a symptom. It is so recognized by all intelligent physicians. To give iron for this symptom is pure symptom-whackery—it is antipodal to causal treatment. The iron electors have lost their function, and refuse to take up the ferruginous element. See the *irony* of this iron mania—the usual doctor necessarily reasons this way, if he reasons at all in the case: "I see that her system is incapable of taking up iron, therefore I shall give her—*iron*." Dear doctor, am I putting it too severely? I think not, for it is impossible to hit the right nail on the head too hard. Iron has been the crux of the ages. Why? Because the zealous iron enthusiast never *could*, and never did, force it to be assimilated—it refused to play the role of *food*. It persisted in remaining a chemical astringent—that and nothing more. What quantities of brain vapor have been wasted in attempts to synthetize chemical iron into nature's food iron! Suppose some ambitious biochemist had succeeded in duplicating nature's food-combination of iron, *what would he have done with it?* What excuse would it have had for existence, since all our foods contain enough of iron, and to spare? Don't you see the foolishness of it all? I have discussed iron because it is the "boss" tissue food. What is true of iron, is true of all the "tissue foods."

I am perfectly aware that this screed, as many will designate it, will collide "head-on" with the fixed prejudice of a large majority of my medical brethren. Simply, I can't help it. What I have given you is philosophy, not mere theory. This philosophy is justified by the *practical* outcome of thousands of experiments which I have made within the last twenty years. It is due many manufacturers to say that a number of iron preparations on the market are good and reliable medicines, but they are good in *spite* of their iron content. If they will eliminate the iron element of their mixtures, they will improve them twenty-five per cent. at least. All manufacturing pharmacists are too shrewd to offer the profession any form of isolate, *straight* iron. They seem to actually know that it is the ingredients *associated* with the iron that do the curing. Separate the other elements from the iron of the old tincture of the muriate of iron, try the naked iron, and see what results you get from the iron! You will get *nothing* but *astringence*. I have tested

it scores of times. Iron is a good chemical "backstop;" that is true, but can this fact justify the use of a drug which is so disagreeable and injurious?

The third proposition which I insist is an axiom is this:

What will make a well man sick will make a sick man sicker.

It seems incredible that any sane man will question the truth of this proposition, but it is a fact that many doctors do so. Because a drug may cure a specific sickness, they hastily infer that it cannot for a greater or less time, add to the sum of the patient's distress. Pathology is only perverted physiology, and the fact of sickness does not disturb the fact of vital responsiveness. John Brown sick, is still John Brown. If ipecac will nauseate him in health, it will nauseate him in sickness. Otherwise, the ipecac would not be true to itself, and the animal organism would not be true to itself. Quinine will cinchonize a well man; who shall deny that it will cinchonize the sick man? Is not cinchonism added to the sick man's other distresses? Looking at the question from any point of view, it will be seen that the axiomship of the proposition is incontestable. It is merely a verification of the old truism—"Drugs are double-edged tools." It being true that what will make a well man sick will make a sick man sicker, see what a weight of responsibility rests on the physician! If it is highly exceptional to give the *right* drug—which while it is doing 7 of good is doing 3 of bad—how shall we estimate the harm the wrong drug does? Is it any wonder that some of the brainiest physicians we ever had—with Holmes at the head—have been drug nihilists? The trouble with a majority of drug givers is that their *drug* habit of thought leads them too far away from nature. They lose sight of that most momentous fact, *physiological optimism*, and centre almost their whole trust in drugs. I offer here an enunciation which is *all but* true: *The physician's clinical success is inversely as the square of his faith in drugs.* Who shall deny that the best doctor is the best hygienist? *Knowing* these facts, as most physicians do, why will they persist in hypermedication? Dear doctor, don't shove it onto the shoulders of "the other fellow"—severely inspect yourself, and then square your clinical method with that of the *vis medicatrix naturæ*. If you are positive that antitoxin either positively or relatively increases the number of phagocytes, then use it. This merely illustrates my meaning. In our extreme devotion to drugs, we get too far away from nature.

What we should all realize is that food is the *friend* of our physical organism; *drugs are its enemies. The only excuse there is for the use of drugs in sickness,* is that they are enemies to our organisms. Drugs cure (not by cossetting, for only food does that) by *shock*. Any one can recall many a cure that resulted from non-drug shock. Whether shock will or will not conduce to cure in a given case, will depend on the vigor and rebound of the patient. If the patient is robust and not much reduced by sickness, shock *may* cure him; if he is feeble, shock will hasten his death. The truth of this statement will not be disputed, and the importance of it cannot be overrated. There is only one possible escape from the shock theory, and that depends on the assumption that a drug is a food! Since a drug is foreign to the system, not being assimilable, *necessarily* it *shocks*.

Drugs elect particular tissues or organs upon which they *mainly* express themselves. Thus, phytolacca has a *hostile affinity* for the glandular system. Therefore, in mammitis, orchitis, etc., we give this drug very confidently expecting it to raise a local riot in a particular class of glands. In the tumult the morbid trend is deflected into the normal one. That is the secret of drug cure.

For twenty years I have based my practice on those three axioms, and—immodest as it is to say it—my clinical success has been exceptional

Cleves, Ohio. WILLIAM COLBY COOPER, M.D.

THE TORONTO MEETING OF THE BRITISH MEDICAL ASSOCIATION.

The seventy-fourth annual meeting of the British Medical Association was held in Toronto, from Tuesday, August 21, to Saturday, August 25. This is the first time that this association has met in Canada and the second time that a meeting has been held outside of England. While recognizing the courtesy to an important colony and the wisdom of occasionally extending such a courtesy, the practical result was like that experienced when the American Medical Association has gone far from the centre of medical population, only to a considerably greater degree. Virtually, the meeting was one of the Canadian Medical Association, under the auspices of the British Association, and with a comparatively small attendance of the home members of the latter. Guests from the United States were much in evidence, were accorded privileges of the rostrum and the floor and were made generally welcome. There were also a number of medical men from India, Germany, Belgium, France and other foreign countries.

Notable features of the meeting were an address on the circulation from the peripheral standpoint by Barr, and one on surgical technic, especially with regard to brain surgery, by Horsley. The general sessions were held in the new Convocation Hall of Toronto University and, as the building was not completed, its acoustic properties were imperfect. Horsley and a few speakers offering resolutions, etc., succeeded in making themselves heard.

The section meetings were held during the morning only, with a few exceptions, and the programs were of great value. By following this plan, the fatigue and conflict between meetings and social diversions incident to recent conventions of the A. M. A. were avoided. In spite of sultry weather, with showers, outdoor as well as indoor entertainment was afforded and the various receptions, garden parties, etc., were most enjoyable and elaborate.

The business details, such as registration (enregistration), etc., were carried out in the familiar way, and with a minimum of friction. A very thoughtful and unique courtesy was the provision of the new and, as yet, unoccupied Nurses' Residence of the Hospital for Sick Children, for the housing of such guests as could not secure hotel accommodation. The small but well equipped bedrooms, ample baths and resting rooms of this structure were in marked contrast to the hall bedrooms with which many visitors to conventions have to content themselves.

About 2,000 were in attendance. Too much can scarcely be said in praise of those in charge of the various details of the meeting and not the least benefit of the cordial hospitality extended to physicians from the States, is the welding of another link in the chain of professional unity.

CLINIQUE

SCIENTIFIC TREATMENT OF HEART TROUBLE.

PESSIMISM is leaving this subject as well as it is tuberculosis; the cloud is lifting and we begin to take a more hopeful view of heart trouble.

Mitchell Bruce writes wisely on the prognosis of cardiac disease in middle and advanced life; for a careful diagnosis, the study of etiological factors is important, such as tobacco, alcohol, gout, syphilis and strain. In the tobacco heart the prognosis is favorable if abstention from the cause is practised; Bruce admits that he has not seen serious damage done by tobacco alone in sound hearts, nor arterial sclerosis as recorded by some authorities. The prognosis is far more unfavorable in the alcoholic heart, for two reasons: (1) When the habit is established the patient has not the will power to reform; and (2) the frequency of associated disease of a serious kind elsewhere. It is in gouty cases that the prognosis is difficult, but with careful management a large proportion may greatly improve and go on fairly well for some years; but the improvement cannot always be indefinite, for in addition to the extrinsic risks of Bright's disease, cerebral hemorrhage or thrombosis, and bronchitis, there is always the intrinsic danger of coronary and cardiac degeneration. In syphilitic cases the prognosis is still more unfavorable; only one half of Bruce's cases improved at all under treatment, and 20 per cent. died at most within a few years. In cases of physical strain in middle-aged persons otherwise healthy, the prognosis is favorable, and the condition is not fatal; nor in those over forty years of age, despite Osler, are the results anything like as grave as might be imagained. The great liability to relapse is the unfortunate feature. Disorder from nervous strain is amenable to treatment by complete and prolonged rest in the majority of cases, but we must never forget the possibility of inter-current acute disease; and in the application of the above principles to individual cases it is equally necessary to estimate correctly the entire of the patient's environment; his personal circumstances, character and disposition.

The general treatment of valvular disease requires some general consideration as to resting the heart, the advantage of systematic exercise, and the avoidance of all hurry and sudden effort. Prevent obesity; but the reduction of fat must be carried out with the greatest caution; the diet should never be reduced below two-thirds of the quantity necessary to maintain the ordinary weight of the patient, and a routine dietary should be avoided. Frequent and light meals should be preferred, of a reasonably mixed bill of fare, with moderate restriction of fluid drinks, especially during meals. Strong alcoholic beverages, tobacco or strong infusions of tea or coffee should be avoided; in moderate amounts they may be cautiously tried. The stage of compensation is the most auspicious time for exercise; and Van Noorden divides the means into two groups, systematic muscular exercises and hydropathic remedies. He regards uphill walking as the most perfect form—slow and steady walking, deep and regular breathing, avoiding talking during exercise. He also approves of rowing, either in a boat or with a mechanical apparatus, while bicycling, tennis and golf he considers less suitable, because they cannot be graduated and invite excessive exertion. Where uphill walking is not practicable he advises "resistance exercises." Massage cannot take the place of active exercise in these cases, but is often a valuable aid.

As with other German authorities, Van Noorden considers that among hydropathic measures the best is the carbonated Nauheim brine bath; the more perfect the compensation, and the more recent the lesion, the more suitable is the case for such treatment; yet those with whom compensation has just begun to fail, often derive great benefit; for these half-baths, the temperature of which is gradually lowered while the patient is sitting in the tub, are also of great value, and may be carried out at home. They should be followed by energetic friction of the skin, conducted by an attendant and not by the patient. They can be taken at home; no longer is it required to go to Nauheim.

Exercise is used in the treatment of heart disease for three different purposes: (a) To promote a proper standard of general nutrition; (b) to reduce resistance in the peripheral circulation; and (c) to train up the heart for harder work. Different kinds of exercise fulfil these indications; thus, massage may be taken as a type of that required for the first purpose; slowly executed resistance-exercises, for the second; and active exercise, such as hill-climbing, for the third. In prolonged rest, massage is almost essential to maintain an adequate circulation of the body-fluids and to neutralize the retarding effects of prolonged rest upon nutrition. With regard to resistance exercises, the all-important point is the selection of the proper cases; the exercises are not suitable for cases of cardiac excitement, palpitation and tachycardia, nor for cases of arterio-sclerosis with excessive arterial tension and albuminuria. Respiratory passive movements have been also found exceedingly useful by Satterthwaite; for patients in bed, they are instructed to lie on the back while the operator passes his hands under the chest and raises it slowly without lifting the person actually from the bed. This movement is specially adapted to obese patients, or to cases of cardiac dropsy; each respiratory movement is in the direction of artificial respiration, and should be repeated from one to five times a minute. Stronger patients are instructed to sit on a stool while the operator, standing behind, grasps the axillæ, the arms being raised, and raises the patient upward, at the same time bending him backward; use the various exercises as to give a pleasing variety, never making the séance at first more than fifteen minutes. In the heart diseases of children, Taylor says that in carefully selected instances the use of regulated activities afforded much relief to many of the distressing symptoms which accompanied and followed disordered conditions of the heart. The term "exercise" should be clearly kept in mind as being a normal use of the bodily parts—not merely of the muscular system, as it is usually understood, but particularly the inter-relation of the viscera and their mutual co-operation. The first and most important item is to teach the individual to sit, stand and move in proper attitudes. Then secure and practice full flexibility of the movable joints and skeletal tissues. An invaluable form of exercise is the act of breathing correctly, which should be taught, enforced and practiced. Taylor also relates his experience in adapting these measures to children, showing what remarkable results are sometimes brought about by movements which seem to be of the simplest sort. Among these he mentions readjustment of the muscles of the trunk and limbs, also stretching, both active and passive, and the cautious use of massage and baths.

Most of the movements should be begun in the recumbent posture, and all should be followed by long periods of recumbent rest.

Crook has done good work in the nomenclature and identification of cardiac neuroses. He divides them as follows: The term palpitation should be reserved for those cases in which it constitutes the essential feature of trouble, unaccompanied by any discoverable cardiac or general disease, while tachycardia should be applied only to those cases in which the increased frequency of the pulse is paroxysmal and well marked, even though it sometimes occurs as a complication of or in association with other conditions more pronounced. There should be no murmur nor other evidence of organic disease of the heart; the attacks end abruptly, and last from a few minutes to several hours or days. Bradycardia, on the other hand, is always a secondary condition, while the dyspeptic heart is purely symptomatic. It may take the form of palpitation, increased action, neurasthenia cordis, arrhythmia, or pseudo-angina; and its identification depends upon the due recognition of the disorder with which it is associated. Neurasthenia cordis or "weak heart," brought on by long-continued depressing emotions, frequent excitement, long marches, overstudy, masturbation, etc., or it follows convalescence from acute specific fevers, or is associated with exhausting chronic disease. It is a symptom of general neurasthenia. The irritable heart is closely allied to the foregoing, differing in that cardiac overstrain is a factor in its causation, and accordingly is frequently associated with dilatation. Arrhythmia includes all forms of irregularity or intermission, occurring apart from caridac or other organic disease; also tremor cordis—in which a quiet, steady heart is suddenly seized with a rapid fluttering, and the ordinary pulse suddenly drops to a mere tremulous thread, lasting for a few seconds and ending suddenly with an unusually forcible beat. The extreme degree of irregularity, intermission, and rolling-over sensation of the heart's action, known as "delirium cordis," is not a true nerosis, and is only found in association with organic cardiac disease. The heart of Graves' disease is a neurosis which is characterized primarily by its association with the other signs of Graves' disease; and secondarily by palpitation, increased frequency, and generalized throbbing of the arterial system.

Dealing with cardiac failure from an etiological rather than from a pathological point of view, Hare says that the various causes of cardiac failure come under the following five headings: (1) Changes due to sudden cardiac stress; (2) changes due to valvular lesions producing gradual cardiac stress; (3) changes in the blood vessels producing cardiac stress; (4) changes in the blood itself whereby the heart fails; (5) changes in the heart muscle of a degenerative character produced by toxic agents and senility.

Changes in the heart muscle frequently follow sudden strain, and occurring oftener than is generally thought; the valves often suffer damage at the same time, and the results which follow may be immediate or remote.

While Kernig has long taught that angina pectoris is due to thrombatic and embolic processes in the coronary arteries, and that the coronary sclerosis is liable to induce foci of softening or infarct in the myocardium or to involve the pericardium in inflammation by allowing the passage of bacteria through the walls of the smaller vessels, yet he has found that it is only in the severer forms of angina pectoris that such positive findings can generally be obtained. In describing typical examples of such findings, he noticed in one group slight fever after the attack, with appreciable enlargement of the heart, both subsiding under complete repose. In one case the attack was followed by temperature of 37.5 C., with pulse of 84.90 and 96, the heart found progressively broader following each attack. In another case there was dulness in the left second interspace, but this dulness was not apparent immediately after the attack, but developed in the course of the second day. The heart sounds were very loud in this interspace, close to the sternum, while they were very weak in the fifth interspace. He accepts these findings as evidence that the left auricle had become enlarged; this enlargement has been experimentally established as an almost inevitable consequence of occlusion of the coronaries. Circumscribed dulness in the second left interspace, close to the edge of the sternum, is one of the most constant signs of mitral stenosis. The third group includes five cases in which acute pericarditis followed the day after the attack of angina pectoris. Huchard found seven cases of recent pericarditis in 185 cases of angina pectoris which came to dissection; the list included also eleven cases of chronic pericarditis and fourteen of rupture of the heart. In two other cases of Kernig's experience the heart did not present any physical findings, but functional disturbances were manifest after the attack of angina pectoris, oliguria, edema, etc., illustrating the transitional forms between the cases with positive findings and those in which the angina pectoris does not seem to be followed by any disturbances. Kernig believes he has saved many patients from sudden death by ordering absolute rest in bed for days or weeks after a severe attack of angina pectoris.

The following table of differential diagnosis between true angina and hysterical pseudo-angina was prepared some years ago by Huchard. True angina is most common between forty and fifty years, being most common in men. Attacks are brought on by exertion, and are rarely periodical or nocturnal, nor associated with other symptoms. Vaso-motor form rare. Agonizing pain is present, and sensation of compression by a vise, the pain generally of short duration; attitude; silence; immobility. Lesion is sclerosis of coronary artery. Prognosis is grave, often fatal; while hysterical pseudo-engina occurs at every time of life, even at six years of age. Most common in women; attacks are spontaneous; often periodical and nocturnal. Associated with nervous symptoms; vaso-motor form common. Pain is less severe, sensation of distention. Pain lasts one or two hours; agitation and activity. Neuralgia of nerves. Never fatal.

Huchard in genuine angina gives iodide of potash for three or four years in doses of 45 to 60 grains daily, taking care to suspend it for eight or ten days each month; in rheumatic cases, sodium salicylate with rest, even temperature and dietetic care. The inhalation of nitrate of amyl to relax the peripheral arterioles, lower the blood pressure, and relieve the heart. Nitroglycerine and hypodermic injection of morphia are also useful for the same purpose, and act much in the same way. Hot applications to the chest. Faradization of the cardiac region, with internal administration of diffusible stimulants, belladonna, and small doses of opium can be tried.

Valerianate of amyl is a rather new drug suggested for angina pectoris; in odor resembling the russet apple, it has the physiological action of the ether group, producing general arterial excitement followed by drowsiness, and if absorbed through the lungs even anæsthesia. It has the power to dissolve cholesterine, and so has been tried in hepatic colic. Blanc says it is less prompt than ether, but it appears to be more lasting and more certain as a preventive. It can be agreeably used in capsules. In cases of dyspepsia, by no means uncommon in connection with hepatic disease, it may produce vomiting; in this case ether may be used at the start, or an injection of morphine may be administered. Later the valerianate of amyl may be given in 2½-grain capsules every quarter or half hour until the crisis is passed. The drug does not act by exciting the secretion of bile, but by terminating the painful spasm of the duct by the anæsthesia which it then produces to a greater or less degree, and by entering into the circulation prevents the concretion of cholesterin in crystals. In nephritic colics it acts only as an antispasmodic and general stimulant without affecting the calculus itself, although it benefits the accompanying reflext origin, intercostal neuralgias, muscular rheumatism, have been benefited. Menstrual colics are relieved cystitis. Nervous troubles, gastralgic crises, colics of reflex origin, intercostal neuralgias, muscular rheumatism, have been benefited. Menstrual colics are relieved and even the flow increased; and in this respect it is superior to apiol, especially as being less of an excitant, Anginal distress lessens after its administration, while it is excellent in hysteria.

Schott's method consists in the administration of warm baths, either simple saline, or saline with a large percentage of carbonic acid, at a temperature varying from 86° to 92° F.; the duration of the bath being from five to twenty-five minutes, short at first, but gradually lengthened. First come the simple saline baths at the higher temperature, and they are subsequently gradually and cautiously strengthened by the addition of a strong solution of the salts, while the temperature is gradually reduced. The baths are taken once every second day or daily for three days in succession, with one day's interval following. After the bath the patient remains undressed and lies down warmly covered, for at least an hour, extending over a period of from five to seven weeks; employ extremely simple but systematic exercises of the trunk and limbs; a principle of the gymnastics being that the patient's movements are restricted by another person. These exercises consist of flexion, extension, and rotation movements; a movement should never be immediately repeated, but followed by a short period of repose. It should not be made so rapidly or against such a degree of resistance as to cause acceleration of the pulse or respiration. All movements must be carried out slowly and steadily, without jerkiness. During the baths there is a slowing of the pulse with increased volume and strength, and irregularity, if any exist, is lessened or disappears. The cardiac contractions are increased in vigor and the cavities better emptied, thus permitting of a diminution in the size of a dilated heart. This marked and beneficial effect on the action of the heart does not disappear at once, but persists for a considerable time subsequent to the baths. If properly administered, the baths should produce a gradual and perceptible amelioration of the symptoms, while during the gymnastics the rate of the pulse falls and the volume and strength are increased.

Brandenburg, in reference to digitalis, states in his experimental research one phenomenon was steadily noted: it was that a small amount of digitalin injected under the skin temporarily diminished the response of the heart muscle to stimuli of various kinds, while it increased its contractility. In discussing the clinical significance of this fact, he states among other points brought out that digitalin is contra-indicated in cases in which the irregularity of the pulse is due to morbidly increased automatic action of parts of the heart which normally do not develop movement stimulus. This class of cases includes certain forms of pulsus bigeminus in neurasthenic subjects; digitalin in such a case would only exaggerate the morbid tendency of the heart muscle.

A hopeful note comes from Davis; in discussing the prognosis in chronic valvular affection of the heart he suggests that actual recovery from a valvular lesion may take place by enlargement of a healthy valve to replace the deformity caused by disease of another. The average age of death in mitral stenosis is 50 years; in mitral insufficiency it is 40 years; and in aortic disease 36 years. In 250 cases which he records, he found that the average duration of compensation in mitral insufficiency was 5.1 years; in mitral stenosis, 11.5 years; in aortic stenosis, 7 years; and in aortic insufficiency, 2.3 years. The mitral lesions commonly cause death earlier, because they are likely to occur earlier in life, and they also lose their compensation rapidly. The duration after loss of compensation varied relatively little, being shortest in mitral insufficiency (2.6 years), and longest in aortic stenosis (3.8 years).

It is difficult to get exact data as to the size of the heart by means of percussion, due partly to the anatomical relations of that organ, and partly to the wide variations in the position of the heart, and the extent of its contact with the chest wall varying with the posture of the patient; hence it is a good habit to use percussion in the prone posture, which may be attained by having the patient on his hands and knees on a table, or standing upon a high-backed chair with the trunk bent forward, the right hand resting on the back of the chair, and the left arm placed loosely behind the back. The apex moves outward, sometimes outside the nipple line, and is more diffused; the area of superficial dulness is increased, and the transition from pulmonary resonance to cardiac dulness becomes much more abrupt and easily defined.

The binaural stethoscope is the best, owing to the suppression thereby of all sound due to the mere sympathetic resonance of the chest wall (Sewall): (1) It enables one to estimate more exactly the real energy of the ventricles from the intensity of the first sound of the heart; (2) it permits the more exact determination of the cardiac boundary, by the more or less abrupt diminution of the intensity of the sounds as the border of the ventricles is passed; (3) under normal conditions, pressure over the inner end of the second right interspace nearly or quite annuls the second sound of the heart, whereas, in marked aortic dilatation or aneurysm of the ascending aorta this is not the case; (4) it permits a more accurate interpretation of heart murmurs. Thus, (*a*) basic systolic "hæmic" murmurs often disappear with pressure over the base of the heart; (*b*) aortic systolic murmurs are suppressed by auscultation with firm pressure over the apex, whereas

mitral systol murmurs are not so; (*c*) pleural and pericardial friction sounds are generally intensified by pressure.

Opiates are often excellent in advanced cardiac disease, especially after repeated failures of other measures where complete rest of body and mind, aided by free administration of cardiac stimulants and tonics and the judicious use of purgatives, often fails to give relief; signs of cardiac incompetency are increasing; with increasing dropsy and dyspnoea with insomnia. The tone of the rest of the body is not sufficient to bring the needed rest to the heart; it remains irritable; its action becomes increasingly irregular; here the patient grows weaker and the paroxysmal dyspnœa increases. As a rule, as soon as he falls asleep, a severe attack of dypnœa causes him to awake and sit up in bed; the distress from the dyspnœa is great, but that from want of sleep is still greater. These cases are rarely benefited by the freest possible use of digintalis or other cardiac tonics and general stimulants, and if the dyspnœa is not due in part to effusion into the pleura and œdema of the lungs—which is persistent and not paroxysmal, as cardiac dyspnœa is—there is no remedy so effective in such a condition as morphine. In my experience, the comfort afforded by a hypodermic injection is almost incredible, but if given by the stomach it may fail even in much large doses, because absorption is so slow, on account of the venous stasis in the gastric mucous membrane.

There may be a vicious circle established between digestion and heart disease for venous stasis of stomach, intestines, pancreas, gall ducts, and liver intensified the difficulties of nourishment under such conditions, for not only is digestion impaired, but the glycogenic, urea-forming, and protective functions of the liver, are added to the problem; anæmia is thus added, also uric acid accumulation in the system, and deficient general oxidation. Two classes of cases were to be considered according to Babcock: (*a*) Those in which compensation was present; (*b*) those in which compensation was lessened or lost. In the second class the dietary must be restricted. The "gone" feeling and thirst in these cases were no indication for food, and food should not be given too often, but at intervals of five or six hours; the stomach should be spared, and the symptoms will improve. Hot water before meals was useful, while the amount of fluid taken with meals should be restricted. In the presence of œdema it should be reduced to a minimum. Starch, sugars, and fats are bad, owing to their tendency to cause flatulency and postprandial pressure; the proteids are indicated, apples, peas, beans, meats, oysters, being all good. When nephritis complicates it, milk can be used; when arteriosclerosis, no food containing much calcium salts should be allowed.

Bradydiastole is a peculiar rhythm of the heart characterized by a prolongation of the diastolic silence at the expense of the duration of the first sound, which is very short, and the interval between this and the second sound, so that the rate of the pulse is not increased to any extent. While it has been observed in comatose conditions, in grave cerebral hemorrhage, and in uremia, the bradydiastolic rhythm is of special prognostic value according to Huchard in all chronic diseases of the heart and in digitalis poisoning, where it is the sign of a progressive and ultimate degeneration. Digitalis no longer realizes its beneficial effects, and is positively injurious. When it is observed without being followed by grave accident it should always be regarded as an important warning of a possible rapidly progressive dilatation of the heart, showing that the heart receives in each of its revolutions much more blood than it can expel. Phlebotomy is indicated for the relief of the engorged ventricles, together with the administration in full doses of cardiac stimulants, as strychnine or spartein in full doses and by hypodermic injections of caffeine.

Broadbent, referring to the hardship caused by the needless rejection of army and public service candidates because of temporary heart disturbance under the influence of excitement, and the depressing conditions of preparation for examination, says: "It would take a great deal to make me reject the captain of a football team of a large school. Such disturbance of the action of the heart, however exaggerated, is not inconsistent with perfect soundness and efficiency." "A fair test" would be to make the man run a mile around one of the cinder paths at his own place, noting his time, but especially the period at which he got his second wind, and how he finished up. Sometimes a run up two flights of stairs would bring the heart to its senses. A more common cause of rejection is the presence of a murmur which may be perfectly innocent of significance; such murmurs may simulate closely a soft systolic mitral, but are heard only during inspiration or when the chest is full, and are due to compression of the overlapping lung by the heart during systole. Pulmonary murmurs may depend on bulging of the conus arteriosus against the chest wall; they disappear when the lung is interposed on deep inspiration. Sometimes bruits are heard, not only in the course of the ordinary mitral regurgitant, but over the greater part of the lung. In such cases there is usually pleural adhesion. Such bruits have been looked upon as indicative of valvular disease, requiring treatment by digitalis and demanding all sorts of precautions in the matter of exercise. Broadbent mentioned the case of an athlete, aged twenty years, who presented a murmur resembling the mitral regurgitant, and also one over the pulmonary area. Apart from the bruits, the heart sounds were normal, and there was no accentuation of the pulmonic second sound; the left side of the chest was narrower than the right and moved less on respiration. The condition was probably due to pleuro-peri ardial adhesion, and after five months' very vigorous exercise the patient was none the worse. The criterion of pseudo-mitral disease is absence of displacement of the apex beat and of accentuation of the pulmonic second sound, or undue right ventricular impulse, together with absence of symptoms. Broadbent, after experience, believes that restrictions as to games in such cases, except with regard to football, house runs, and training for races, are often needlessly imposed. There is food for thought in these remarks of this excellent English authority.

The Impurities in Ice.—Sacerdote finds (*Presse Medic.*) that the center of a cake of artificial ice is generally opaque, while the part first frozen—the outside—is generally clear. As water freezes slowly, all the impurities are pushed away from the part first freezing. Whatever the character of the water which is frozen that obtained by melting the outer, clear parts is almost perfectly pure, while the central, opaque parts contain the impurities. Bacteria do not escape this law; but will be found centrally congregated.

RETROSPECTIVE

Hæmoptysis.—Pic and Petijean (*Lyon Med.*, Feb. 12, '06) believe from both their laboratory experiments and clinical experience that nitrite of amyl is the most useful pulmonary hæmostatic. From three to nine drops should be inhaled. The latent period is short—from half a minute to three minutes; no vaso-dilitation succeeds the vaso-constriction; there is no fatal poisoning; the hæmostatic action resulted either in the early congestive stage or in the period of cavitation. In the laboratory a curarized dog was kept alive by artificial respiration. The fall of arterial pressure in the larger circulation was first noted. The color of the lungs was observed before and after injection of the amyl nitrite; after the injection the normal rose color gave way to a white anæmic tint, beginning in patches which extended and coalesced so as to involve the whole pulmonary parenchma. This action lasted for about eight minutes and was so marked that upon deep section of the lung at the end of the latent period after the injection, the bleeding ceased almost as if a ligature had been applied. A pressure tracing showed a marked rise of blood pressure after the injection, a rise which was maintained for ten minutes. It is not claimed that amyl nitrite is a certain specific for hæmoptysis; but it is the first among the vasomotor drugs in this condition. In cases where the hemorrhage is due to right heart enlargement digitalis will give a better and more permanent result.

The conduct of a normal labor is succinctly described by J. M. Clemens, of the Johns Hopkins Hospital (*Surgery, Gynecology and Obstetrics*, Feb., '06). During pregnancy *the patient* is to take as much outdoor exercise as possible, guarding, however, against fatigue. On the first day of each month she is to send a mixed (night and morning) urine, eight ounces for examination, with her name affixed; this to be done semi-monthly during the last two months preceding the labor. From and after the sixth month the nipples must be bathed in a solution of four ounces of alcohol and water to which a tablespoonful of borax has been added; this solution is to be kept corked and applied by means of absorbent cotton. Six weeks before the expected confinement an outfit should be bought, which will include everything essential for the doctor and the nurse; in addition must be provided two pieces of rubber sheeting ¾ by 1 yard and 1 by 2 yards respectively; a bed-pan; two small round agate basins; a two-quart fountain syringe; 25 yards of gauze; two pieces of cotton batting for making bed-pads, or four ready-made sanitary bed-pads. The nurse is to be sent for as soon as labor pains begin. She will use her judgment in sending for the doctor, unless some emergency arises. She must notify the doctor at once if any of the following symptoms occur during pregnancy—scanty urine; persistent headache; disturbed vision; swelling of face or feet; loss of blood; persistent constipation; or when anything is felt to be not as it should be. The physician should call five or six weeks before the expected confinement, to ascertain the state of things, and to give any desired advice.

The nurse, in making preparations for labor, must see to it that the patient has prepared a confinement outfit, and the other articles called for in the directions for patients, which should include everything needed by the doctor or the nurse, except baby-clothes. A sufficient number of sterile bed and vulval pads must be made. A week before the expected event five packages should be prepared for the physician: two containing six towels or diapers each; one containing leggins, another cotton pledglets, and another gauze sponges. These are to be carefully sterilized and labeled.

At the time of labor: If pains begin between 7 a. m. and 11 p. m., the physician should be notified as soon as possible, so that he may make his plans accordingly; but if labor begins between 11 p. m. and 7 a. m., he should not be notified until the pains are strong and frequent, or unless the nurse thinks the doctor should see the patient at once. At the commencement of labor two large pitchers are to be filled with boiling water and covered with clean towels. When labor has definitely set in the patient must have a warm bath and a soapsuds enema. The bed is to be made on the left side. A piece of oilcloth or an old rug must protect the carpet. No vaginal douches must be given. No vaginal examination must be made under any circumstances. The patient must be prepared for a vaginal examination by placing her upon a Kelly rubber pad. The genitalia must then be washed thoroughly from above downward, toward the anus, with soap and hot water, using cotton pledglets instead of a wash cloth. The pubic hairs may be cut when necessary; then the vulva is to be bathed with 1-1,000 bichloride and afterward covered with a folded towel soaked in the same solution. Before an examination, or when the birth appears imminent, the night-gown must be rolled over the patient's hips and the obstetrical leggins put on. As soon as labor is over, the genitalia must as before be cleansed, bathed with bichloride and covered with a sterilized pad. A sterilized bed-pan must be used. An abdominal binder is not to be used until after the tenth day, unless other directions are given. The vulval pads are changed as often as necessary, the genitalia being washed each time with 1-4,000 bichloride. Temperature and pulse are to be taken and recorded, unless otherwise directed, four times daily, at 8, 12, 4 and 8 o'clock. The catheter is not to be used unless the bladder is distended and until the patient has failed to urinate in the sitting position. A half-ounce of Rochelle salts is to be given the morning after labor, and to be repeated in four hours if not effectual. The nipples must be bathed with saturated boracic solution before and after each nursing. Cracked nipples must be looked for carefully, and reported. The diet for the first 24 hours consists of milk, soup, coffee or cocoa and buttered or soft toast; to this is added, on the second and third days, boiled or poached eggs, raw or stewed oysters and wine jelly; to this again are added on the fourth and fifth days, chicken, sweetbreads, potatoes and rice; and after this the patient's customary diet.

The Nauheim methods in heart diseases are dwelt upon by Kinnicut (*Bost. Med. and Surg. Jour.*, May 17, '06). There are three springs used for bathing purposes, their chief constituents being sodium and calcium chloride, and carbonic acid gas free and in combination. A system has been elaborated which permits of a wide variation in the saline and carbon dioxide strength of the baths, and they are known as they vary in their different constituents as follows: The ordinary brine bath, the thermal brine bath, the thermal effervescent bath, the effervescent bath, the current thermal brine bath and cur-

rent effervescent bath. Kinnicut describes the course of baths, from twenty to thirty-five in number. In healthy subjects the immediate effect of immersion is a notable diminution in the frequency of the pulse and a distinct increase in its volume. The "Schott resistance exercises" used in connection with these baths, consist of movements designed to bring into successive and regulated action almost every collective system of voluntary muscles in the economy, without undue strain on heart and lungs. The baths are indicated for enfeebled, relaxed, dilated hearts, with or without a murmur of muscular or relative mitral incompetency, following prolonged and exhausting diseases, the various acute infectious diseases, and also associated with anæmia of varied causation. Anginas and general arterio-sclerosis should be treated with great circumspection; aneurism and general emphysema are *not* to be treated by these baths.—MEDICAL TIMES, June, '06, p. 189.

The child must be left alone until the mother is cared for, wrapped in a woolen cloth and put in a safe place (not on the mother's bed or upon chairs). Its eyes must be washed with boracic solution. It must be rubbed thoroughly with vaseline or sweet-oil, and then be given a full bath, using castile soap and warm water. The cord must be dressed with boracic acid and sterile cotton; and this dressing is not to be changed until necessary. The child is to be washed daily in the nurse's lap; the full bath is not to be repeated until the cord comes off. Until the mother's milk appears, the child is to be nursed three times a day, giving no other nourishment unless directed. After the milk appears the child must be fed, except after its bath, every two hours, by the clock, from 6 a. m. to 10 or 11 p. m. One feeding must be timed to come directly after the bath, upon which the child may, if it will, be allowed to sleep for three or four hours. There is to be but one feeding during the night. Before each nursing the baby's mouth must be washed out with boracic solution. After the first three weeks one or two bottles of milk should be given a day, no matter how much milk the mother may have. The child's weight is to be taken and recorded twice a week.

The confinement outfit should comprise: potassium permanganate, oxalic and boric acid, bichloride tablets, chloroform, alcohol, green soap, vaseline, ergotole, two pieces of rubber sheeting, one bed-pan, two basins, one fountain syringe, absorbent cotton and gauze, cotton batting, bed-pads, leggins, large and small safety pins and nail-brush.

The prophylaxis of lobar pneumonia involves the following points (J. M. Anders, *Am. Med.*, Mch. 31, '06): Thorough and prompt sterilization and staining of pneumonic sputum and of all secretions from the upper respiratory tract. Isolation of pneumonia patients whenever possible: most clinicians now agree that the pneumococcus is directly transmissible. Hardening of the body and accustoming it to cold air and cold water. However, prolonged exposure during inclement weather or after great fatigue predisposes, especially the aged and the weak; a tonic of strychnine, quinine and gentian is appropriate for such cases. Colds and all catarrhs should receive prompt and energetic treatment. Nasal obstructions should be corrected and the diet and general hygiene should be regulated. Health Boards should issue systematic details concerning the prevention of lobar pneumonia. All practitioners should be provided with copies of carefully prepared regulations, which they should be obliged by the authorities to carry out. The populace should be made to understand that the stronger alcoholics are deleterious in their influence, lowering resistance to infection during the pneumonia season.

Traction in Hip Disease is advocated by E. H. Bradford (*Am. Jour. Orthopedic Surg.*, Jan., '06). When there is pressure, crowding the head of the femur against the acetabulum; when, in an acute stage an exaggerated muscular irritability or spasm exists, which crowds the head of the femur as just stated; when in bone disorganized from ostitis the violence of frequent contusion, or the crowding of one inflamed surface against another, is not favorable to healing; when a force, which will counteract muscular spasm and draw the head of the femur away from the acetabulum, favors correction, prevention of deformity and more rapid healing of the diseased bone tissue. Experiment and the X-ray demonstrate that a traction force can be applied which will not only entirely overcome the spasm of the muscles about the hip, but which will also, unless ankylosis has been established, draw the head of the femur away from the socket. The clinician has learned the advantage of a traction force applied for distraction during the acute stage of hip disease. Traction is not needed during the whole period necessary for the treatment, but only during the stage of active muscular spasm. During the ulcerative stage fixation of the joint and strong traction are both needed; limited motion of the joint is not injurious, but protection from violence is essential until the bone tissues have regained their normal strength.

In the vomiting of pregnancy, when no local lesion or malposition can be found, C. Rosewater (*Jour. A. M. A.*, Jan. 13, '06) advises the patient to stay in bed at least an hour after breakfast; and gives ingluvin, ten grains before and after each meal. This treatment usually suffices for mild cases. In the severer forms there is usually some pathological condition, the righting of which will be followed by relief. The use of extreme measures tending to produce abortion and such as are carried beyond the absolute necessity of the case are reprehended. In one case Rosewater was able to check the vomiting which was threatening the patient's life by inserting a bougie into the uterus and leaving it there forty-eight hours until the distressing symptoms ceased; the pregnancy was not interrupted and the case went on favorably to full term. Generally, however, this procedure results in abortion. Merely to insert the tip of the finger within the external os will oftentimes relieve the distressing vomiting, without interfering with the course of the pregnancy. Rosewater believes that "when in pregnancy, for just and lawful reasons, the emptying of the uterus is resorted to, and during the operation improvement in the fundamental conditions supplying the excuse for the abortion occurs," the physician should, if not too late, cease in his attempts to cause abortion, and should make all efforts to save the child, as well as the mother. Here he is right. Such a procedure should be resorted to only to save the mother's life; if, in doing this, that of the infant can also be saved, the latter should by all means be vouchsafed, if possible. After the mother has been guarded from death, it were criminal to neglect the title of her infant to life.

Constipation is divided by Stunn (*St. Paul Med.*

Jour., Jan., '06) into two groups, the atonic and the spastic. The former is the usual form and is not accompanied by pain. The spastic type, which is the rarer, is usually characterized by pain, which may be located in any part of the abdomen, but mostly somewhere along the course of the colon. The pain as a rule bears no relation to the ingestion of food; it varies in severity and duration; may be sharp and lancinating, or dull, heavy and cramping. When the abdominal walls are thin, one's fingers may, perhaps, detect the contracted segment of the intestine. The spasm can be felt by the finger introduced within the rectum. The character of the stools—cylindrical, from two to four inches in length, and a quarter inch in diameter—is licate this condition. Sometimes these stools are triangular, or ribbon-shaped masses; stringy mucus may accompany their passage. In therapeusis one must bear in mind that there is an irritative condition in the large intestine, and that the ordinary methods used in atonic constipation will only prove aggravating. Such patients have usually found the ordinary cathartics of no avail. A diet rich in cellulose and producing an abundant digestive residue, such as is often advised, and such as is certainly useful in the atomic form, is harmful in the spastic type. Fruit may be allowed—cooked rather than raw. Exercise may be objectionable; rest improves most of these patients. Warm baths and hot abdominal applications will relax the spasm and relieve the pain. Cathartics must be avoided in these cases. Belladonna and opium relieve the spasm; but their continued use is objectionable, especially of the latter. Injections of olive or cottonseed oil are the best—used at first every evening, later every second evening, and finally once or twice a week. The oil—a pint injected just before going to bed and retained till morning—lubricates the intestines, softens their contents and splits up the fatty acids. The last action probably causes an increased peristalsis through chemical excitability. The oil is best given with the patient on the right side, the left limb extended and the right flexed at the knee and placed in front and over the extended left one. A moderate sized rectal tube is passed seven or eight inches into the rectum at a temperature of 100 degrees. Electricity, massage, severe exercise, cold baths and other measures appropriate to atomic constipation should not be used in spastic cases.

Respiration Innervation.—The *N. Y. State Journal of Medicine* recognizes that theory regarding a number of brain functions has been so complicated by the assumption of several centers for each that little use could be made of related clinical phenomena. One of these, that of the regulation of breathing, has, however, been materially simplified by recent work. Nikolaides concludes: I. In the oblongata there is a center for normal respiration, *i. e.*, the rhythmic change of tension (inspiration) and relaxation (passive expiration) of the same muscle group, the inspirators. II. There must also exist in the oblongata a center for actual expiration. III. The center for normal respiration is influenced by an inspiratory inhibiting center, which lies in the posterior quadrigeminal bodies; its removal, even where the vagi are intact, is followed by changes in the respiration. IV. The center for active expiration is inhibited in its activity during normal respiration by an expiratory inhibiting center which exists in the anterior quadrigemina or in the parts beneath them. V. The inspiratory centers described in the various parts of the brain-stem above the oblongata are properly inspiratory tracts, the centers for which lie in the cerebral cortex. Mavrakis and Dantas conclude: "There exists a spot in the upper part of the precentral convolutions irritation of which calls forth definite and pure respiratory movements, unaccompanied by any other motion. The centrifugal fibres from this spot traverse the internal capsule, the foot of the crus, and the basal ganglia in the midbrain, in which they run very close to the middle line on the corresponding side, to their termination at the respiratory center in the oblongata; these fibres consequently do not cross, but pass on the same side, at least to the midbrain.

Railway Brain Strain. — Hughes (*Alienist and Neurologist*, May, '06) finds that railway employees are in large measure overtaxed in their work; and are moreover subject, when off duty, to influences which tend to vitiate the integrity of the mental powers. There is much too often excessive overtime work. Accidents are practically certain of occurrence when train dispatchers, engineers, or switchmen, serve continuously from forty-eight to seventy-two hours, or even for twenty-four hours. Such excessive brain strain in all departments of public service should cease, especially when consequences are so serious as in the railway service.

Infantile scorbutus usually results from the use of some diet unsuited to the individual child; the farther a food is removed from the natural food of a child the more likely its use is to be followed by the development of scurvy. The absence of freshness and the heating of the food are also very important elements (J. L. Morse, *Jour. A. M. A.*, April 14, '06.) The earliest symptom of scurvy is loss of color, which is often associated with loss of appetite. The first symptom upon which the diagnosis may with certainty be based is tenderness or pains in the legs or back on handling. Swollen and purple gums and hæmaturia may, however, precede the tenderness and pain. The latter symptoms, elicited on motion, almost always develop sooner or later, and, in half of the cases, are accompanied by swelling about the diaphyses. The legs are affected three times as frequently as the arms. The gums are affected in about half the cases—almost always when there are teeth, very rarely when there are no teeth. Hemorrhages, except under the periosteum, are rather uncommon. In treatment one must give not only a rational food, but also one suited to the individual case. Morse would stop much sterilization and peptonization, and the use of proprietary foods. He would use milk mixtures and would stop pasteurization if the milk supply and the time of year permitted. Beef juice may be used. At least one tablespoonful of orange juice *per diem* is necessary; the juice of half an orange is "amply sufficient to bring about a cure;" in some cases lemon juice may be appropriate.

The value of anti-malarial public works has been demonstrated at Klang and Port Swettenham in the Malay States. A large area was drained and covered with grass at a cost of $50,000, with the result that the death-rate from this disease in 1905 was 45, whereas in the year before this was done the deaths numbered 368; in the surrounding regions which had not been drained the deaths were greatly increased in 1905.

MISCELLANY

The safe kind of whiskey, declares Dr. Wiley, of the Department of Agriculture, is that which is bottled; "the records show that whiskey left in a bottle has never injured any one seriously," states *Harper's Weekly.*

A sensible view of medical etiquette is held by the London *Spectator* which declares that, instead of being kept up, as people so often imagine, in the interests of physicians, it is really maintained in the interests of the public. It is the public, not the doctors, who would suffer most, were medical ethics entirely done away with.

The high handshake, it is announced, is again to become fashionable. This is well characterized as a style that puts ice down the back of the coming guest and makes him glad to go. "No one can give the high handshake and take credit to himself for the possession of a single hospitable instinct." A strong sentiment, but not without justification.

Primary sarcomas of both adrenals, in one case which presented no symptoms of Addison's disease, were observed by Blackburn (*Am. Jour. Med. Sc.*, Aug., '06). The existence of these tumors was not suspected until after death. The symptoms present suggested gastric carcinoma, although the more characteristic symptoms were absent.

Stereoskiagraphy is described by Stover, of Denver, Colo. (*N. Y. Med. Jour.*, Aug. 25, '06), as the arrangement of a pair of skiagrams of the part examined in such manner that one obtains, by means of a special stereoscope, a view conveying perfect perspective. This should be a most useful means of X-ray diagnosis, as any one must conclude who has seen the wonderful sense of perspective attained in the ordinary stereopticon.

Typhoid Fever Complicating Pregnancy.—Foulkrod asks (*Am. Jour. Obst., Aug.*, '06) whether there is "something generated by the pregnant woman which in a certain measure protects her from the more virulent attack of the toxins of typhoid fever, and that the course of the typhoid during pregnancy is undoubtedly modifying should it occur at such a time when the serum or cells have been charged with immunizing bodies."

Cæsarian section was done by Brunet in a case of severe hemorrhage from very large vaginal varicosities. The bleeding could be controlled only by packing, states the *Medical Record;* and each time that the dressing was changed the hemorrhage endangered the patient's life. It therefore seemed unadvisable to permit delivery by the normal route, and Cæsarian section was followed by recovery of the mother and the birth of a healthy child.

Prof. Brouardel died recently in Paris. He was greatly devoted to the science of municipal hygiene. He enlisted in the fight against tuberculosis. He taught early in his career that typhoid fever may be spread by means of a contaminated water supply. He was much interested in medical jurisprudence. As director of the laboratory of the Morgues, he made this institution a model school of pathology. He was truly a great physician and a noble citizen.

The spanemic heart is one which, by reason of deficient nutrition of muscles, is dilated or dilatable. Jackson (*N. Y. Med. Jour., Aug.* 25, '06) has found three varieties: the heart which is insufficiently nourished on account of general anemia; the heart insufficiently nourished indirectly because of more or less persistent vasamotor failure, the blood being normal; the insufficiently nourished heart from a combination of blood disease and vasamotor instability.

Vienna hospitals are so overcrowded (*Jour. A. M. A.*) that a sick workingman tried to gain admittance to the various public hospitals in turn, but was constantly turned away for lack of room. In order to get into some such institution he reasoned that if he could get himself arrested he would then be given hospital treatment. He stole a pair of shoes, was arrested and in the jail was given the needed medical care and treatment. On his recovery he served a brief term for petty larceny.

In drug giving Shattuck (*Boston Med. and Surg. Jour.*, March 29, '06) lays down general rules: to do no harm; to have a clear idea whether we give the drug—as a specific, a curative, a palliative or a placebo; to give the drug uncombined, if possible, though to this rule there are many exceptions. When using an efficient drug one should be sure that the preparation is efficient; and should continue its use until either the desired effect or toxic manifestations are produced. [Be sure your druggist is an accurate compounder and uses *fresh* material.]

The designation of one's associate in medicine is discussed by *The British Medical Journal.* The term "assistant" is distasteful to many medical men who probably feel that one man is as good as another and would be a great deal better but for the lack of opportunity. The benevolent and diplomatic principal would speak of his "colleague." Some have even filched from the clerical profession the title "coadjutor." A well-intentioned old lady, on being asked whether she had seen her doctor, replied: "No, but he has promised to send his accomplice." How will "associate" do.

"Hunger days" in diabetes are counseled by Naunym and Tyson (*Progressive Medicine*). The occasional interposition of a day during which nothing but tea and bouillon are allowed, is very wholesome. When the sugar in the urine has been reduced to a minimum, this practice not only causes the sugar to disappear, but increases the limits of tolerance thereafter. (Medication is of course essential in diabetes; but the patient will be most certainly relieved by the elimination of starches and sugar from the diet so long as the urine is diabetic).

Bellevue Doctors Robbed.—There are some fifty young physicians in this institution, and it is reported that nearly all of them sustained important losses by means of the activities of one or more thieves. It appears to us that the man who would steal from a doctor has reached the very lowest stage of depravity. For the doctor gives so much of his time and strength without money and without price, to ameliorating the conditions of the underworld; he is, more than any other man, the friend and real helper of the destitute. But what shall be said of those who steal from the young hospital physician, who generally has reached the very limit of his financial resources, after his many costly years of preparation for his life's work; and for whose efforts in behalf of the hospital sick the return is merely bodily sustinence and a place in which to enjoy all too brief and always interrupted repose?

THE SEX CYCLE OF THE GERM PLASM.

Its Relation to Sex Determination.

BY THOMAS E. REED, M.D.

PART III.

THE opinion that sex is determined by the *time* of conception or impregnation, has already been expressed. The inplication is, of course, that this occurring at one time the offspring will be female, and at another time, male. Let us suppose merely for the sake of an illustration (for we do not believe either of these hypotheses tenable) that girls are conceived one hour and boys the next, or that one sex is the result of impregnations taking place during one menstrual month, and the opposite sex the result of impregnations taking place during the succeeding month. The sex thus depending upon regularly alternating, equal time periods.

Other things being equal, it now follows that the periods of time during which individuals of one or the other sex may be conceived, being equal, the sexes in the aggregate must maintain approximate equality in numbers. But from the same reason a continual fluctuation must be expected; at times a greater number of boys will be born, again the girls will predominate, the very law of chance which maintains an approximate equality between the sexes preventing, except for very short periods of time, an actual equality. To make this point clearer, let us suppose that a coin is tossed into the air. At every toss the chances of its falling "heads" or "tails" are equal. If the experiment is continued, one or the other will predominate, but in time this lead will be gradually lost, and an exact equality will be reached. This equality will not be long maintained; the other side of the coin will soon show the greater number of times and after predominating for a time the process will be repeated with the same result. There is thus a continual fluctuation from one to the other side of an equality or equilibrium not unlike the stroke of a pendulum. Now it is evident that whether one or the other face of the coin is found in the lead will depend altogether on when the experiment is discontinued. In the same way, there being an equal chance for the conception of males and females, it is also evident that a predominance of the male or female sex will depend altogether on when and where the statistics are taken.

We have seen how necessary it is that any theory of the determination of sex explain satisfactorily this general equality of the sexes. It has also been shown that if we suppose the sex distinction to depend upon the time of impregnation, this equality is accounted for. Looking at the question from this point of view, we conclude that in the first place should the time of impregnation be a determining factor, it could not, for obvious reasons, depend upon any artificial division such as the hour or week, except in so far as this artificial division expressed some definite relation to a natural period of time. We must, therefore, look to some natural time cycle in the external world, such as the regular alternation of day and night, the lunar month, or the year; or we must attempt to determine whether or not sex is influenced by the time of impregnation, in its relation to some natural cycle of change within the organism itself, such as rest and fatigue, hunger and satiety, wakefulness and drowsiness, the regular period of digestion, excretion and secretion, the rise and fall of sexual desire, the anabolic and katabolic cycle through which every organism is constantly moving; or whether by its relation to that great cycle in women, the menstrual month. Finally we must consider whether or not sex may be determined by any periodic change with the germ plasm itself.

We may first eliminate the year as being too long a cycle to consider; furthermore, experiments devised to show any possible effect of temperature on sex have yielded but meagre results. The lunar month must also be rejected as a factor in the determination of sex for the same reason; it constituting too long a period and thus failing to account for double conceptions or pregnancies where both sexes are represented. The theory of Düsing and Thury that sex is determined by the time of impregnation with respect to the menstrual crisis has also this same objection to meet. The unfavorable verdict of Schroeder has already been referred to. We will pass over one or two other objections which might be urged against it, merely stating however, that the view that it constitutes even one of a number of factors in sex determination has never received much support, and we do not know that it was ever applied to the human species with even moderate success. Impregnation with respect to the time of the solar day may be dismissed without much comment. It is probably not unreasonable to believe that the time of day may exert some influence in plants, but it has never been shown to exert any influence over animal life, as far as the determination of sex is concerned. The other factors, such as hunger or fatigue, or, in brief, any superficial somatic variation in the female organism as we have pointed out, in all probability do not exert any influence whatever upon the ovum; its essential characteristics, whether they be functional or structural, are laid down at its organization, and any variation of nutrition in the parent organism can have no effect upon them.

A summary of the results of our review of this subject is now in order.

What determines the sex has been the subject of investigation since the time of Hippocrates. Many of the older theories are entirely discredited by modern science. The view that the spermatozoön has any influence in the determination of sex has long been abandoned. It is now generally conceded that its function is only to originate the amphimixis. This view is held by Beard, Weismann and many others, while we are not acquainted with the papers of any biologist who holds the contrary.

Sex is therefore a property or function of the ovum.

Recognition of the anabolic character of female and the katabolic character of male organisms has led to the hope that sex might be controlled by regulation of the nutrition of the female parent. Experiments have been conducted with this in mind. Many results were negative. Others would seem to show that abundant feeding produces females. No results have followed attempts to determine the sex in the higher orders of life by means of this method.

A general equality which nature maintains between the sexes has been noted. Many theories of sex determination do not satisfactorily account for this. Starkweather takes this into consideration, but fails to meet the objection that his factors of superiority are relatively too indefinite. His thory also fails to account for twins of opposite sex.

Sex cannot be explained in terms of heredity alone. The idea, therefore, that certain parents tend to beget one or the other sex is to be distrusted.

Even were it admitted that the sex might be, to a cer-

tain extent, an inherited condition, modern views on heredity would forbid us to look for any method of controlling it, because sex, while in common with other inherited characteristics, is a function or property of the germ plasm, the inheritance of any acquired characteristics is, after all, very doubtful. If they are ever inherited it is only in special or rare instances or to a slight degree.

Therefore, all theories which would seek to control the sex by altering the physical condition of one or both of the parents may be dismissed.

In no ova which normally undergo fertilization has sex been detected prior to fertilization, while on the other hand embryologists have traced the existence of sex in the embryo back to almost the time of fertilization. Sex, therefore, is determined at or near this time.

However, since fertilization constitutes the crisis in the life of any particular ovum, it is not unreasonable to suppose that the sex of the future embryo is decided at exactly the moment of this crisis.

Shultz, as long ago as 1854, showed that irrespective of the number of individuals, there could arise from one egg but one sex.

Any egg, whether single or double, can be fertilized by but one spermatozoön, and therefore can be fertilized but once.

Conjoined twins, of whose origin from the same egg there can be no doubt, are always of the same sex. But sometimes, notwithstanding the fact that they must have originated from a simultaneous fertilization, they differ remarkably in other characteristics.

From the wide distribution of tertiary sexual characters of one sex among individuals of the opposite sex; from the latent and rudimentary existence of secondary sexual characters of one sex in the opposite sex; from the marked analogy there is existing between the sexual organs proper of the two sexes, and, finally, from the fact that peculiarities of secondary sexual characters may be inherited from a grandparent through a parent of the opposite sex, we know that the male organism contains all the elements of the female and the female all the elements of the male. One is therefore justified in concluding that every ovum is primarily hermaphroditic, and the view that there are two kinds of ova, male and female, may be rejected.

Now to group our phenomena: *It is possible to have a double hermaphroditic ovum, capable of but one impregnation and capable of impregnation by but one spermatozoön, fertilized with a resultant development of two individuals, which, originating from two divisions within the same egg, fertilized at the same time, and acquiring sex distinction at the same time, may differ in other characteristics, but are always and necessarily of the same sex. There is but one conclusion to be drawn from this: Sex is determined at and by the time of impregnation.*

It has been shown that sex cannot be determined by the time of impregnation with reference to the month, menstrual or lunar, the year, season, week, day, or hour. Neither can it be determined by the time with reference to any somatic change within the parent organism. The lunar day, together with a possible sex alternation in the ovum alone remain to be considered.

While further reasons for our belief that this is the true solution to the problem will be stated in the next section of this paper, this will be concluded by the advancement of the hypothesis that sex is determined by the time of fertilization of the ovum with reference to a regular sex alternation (analogous to the katabolic and anabolic fluctuation in multi-cellular organisms) in the germ plasm itself. This rhythm is synchronous with the shortest of natural cycles, one complete cell cycle lasting about twelve hours, and, while not depending upon or perhaps exactly coincident with, at least corresponding to the upper and lower transit of the moon in somewhat the same manner as do the tides.

WHAT DO WE CALL DISEASE?

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

IF I can understand disease, I feel by that much prepared to know what remedy to prescribe and what dosages to venture without hazard to the welfare of the case. Drugs, though administered as remedials, may prove as injurious and dangerous to life as is sickness. Too many drugs are pressed upon the trade of experiment, and too many are administered in disordered health, for the ultimate benefit of the people. Sickness is the commonest thing in the world, hence the causes of sickness are equally common among population and their homes. But usually, by some hocus-pocus of ambiguous habit, the most spontaneous general censure nailed to the cross of suffering reads—"A COLD." There was never a more unreal and misleading though universal off-hand conjecture. However, more lately, "the germ" has taken on a parallel curve of popular convenience, and now "a cold" and "the germ" seem to be running about an evenly matched race of unmerited opprobrium as generators of every disease. One would think that "a cold" was the knave doorkeeper of life and the "germ" was the confederate that wormed the accessible walls of human vitality in spite of all extemporized barriers.

Suppose each one of us, independent of all quoted authorities, devote twenty minutes in solid review of our personal impression of the actual and essential nature of disease. As honestly as do the others I join this circle and deliver my ripened conclusions. There are many forms of expression to describe our ideas of disease. Let me, from practical standpoint, enounce my own. On general principles, disease is simply an abnormal condition that disturbs function, or sensation, or nutrition, or equilibrium of vital agencies which promote the comfort and energies of natural health. This does not imply that disease is multiple and vagrant in nature. One linchpin out, lets a wheel off and twists or strains to distortion the entire running-gear of the coach, let it be royal or rustic. It is seldom that a variety of localized manifestations are independently divorced from some radical systemic enthralment as the basis of disorder.

The difference between perplexities of difficult tasks and the consolations of easy ones is often solved by the difference between defections of judgment and clairvoyance of perception. Let us revert, without skating the clouds for transcendant exposition of new things and theories. This world where our work engages us does not change in its elements. We yet depend on the common soil for solid foods and inhale the common air for the breath that sustains life. Without confusing verbiage, how many real species of disease are we called on to treat? What in abstract fact are the generic causes of most disease—at

least beginnings of general diseases? Barring out accidents, contagious infections, and some special inherited infirmity, we may logically discern the real cause of disease in what is breathed, eaten and drank, and in what is done by each individual. From one or more of these we confront a natural effect and result. To save figurative heartbreaks regarding diagnoses and therapeutics, we simplify the quandary to radical lines of comprehension that embrace a central or general fact to work by, namely, systemic derangement. Because we do not recognize more commonly the ordinary causes of ordinary forms of disease or disturbed functions in daily operation among us, by which to shape our theories and practice and remedies into pronounced lines of harmony and application, medical theories and practice remain in a sphere of continuous variance between minds and men. If disease had as many different basic phases as are contemplated by the interpretations of different men engaged in its treatment, the number would be endless. On the type of the mind and the turn of its perceptions depend the kaleidoscopic glimpses of physical symptoms; but the basic colors and the substance that holds them remain the same. If to be cleansed, one selection of proper wash would serve for all alike. By similarity of analogy of principle, one good medicine or safe combination of therapeutical elements will, in skilful hands, serve for the relief of many phases of disease including their kaleidoscopic alternations of symptoms. Very often, if we prescribed a different drug for each individualized symptom in the complication of sensations, we would put into the physical system a variety of drugs sufficient to merely neutralize each other or hasten a funeral. Could that be considered good doctoring?

Rationally, then, the problem persistently unifies itself. Health is the grand fruition and potency of harmonious functions. Disease is the derangement and impairment of systemic processes—the default and declension of normal physical action. The human organization, though complex, delicate and sensitive, is beautifully and wonderfully perfect. Its normal processes always tend to make repair of what is injured and thereby effect restoration and cure. Too many and complicated drugs may readily impede this restorative process of nature's reconstruction and cure. The means and provisions within and without the body for maintaining life are vastly abundant. Given a beneficent sphere, local environment, I mean, consisting of earth and water and air warmed and lighted by vivifying and purifying rays of the sun, mankind are born into a zone of elements admirably designed to promote health and happiness. Then why are our friends and neighbors, even ourselves, becoming invalids or being lowered to early graves? Beginning with enormous abnormal slaughter of infant population, cutting through all planes of youth and middle age, pale Death mows his ashen swaths from house to house, leaving, eventually, but few to grace the thin and wrinkled line of true old age. Harassed by the wear of pain, the fret of infirmities, the shadows of dread and loss of dear ones, the masses of ailing ones realize comparatively no safe and certain way whereby to escape the Banquo-ghosts of unremitting afflictions.

If as already stated, what we call disease is disturbed or unbalanced functions, systemic derangement, and since the blood is the feeder and drainer of every organ and part, we must apprehend that the means for securing the comfort and availability of health to each and all to ripe old age, are based on pureness of blood every minute of life—and, thereby, preservation of the normal functions of the system as natural defense against sickness. Though there may be pain in the head, the arm, the chest or the feet, we make access to the blood current with our remedy alike for each expression of pain or affliction. We do not say that A is for pain in the fingers, B for pain in the toes, if at same time the forehead is throbbing with the pulse of fever and the chest is hetcheled with distress at every breath. Our remedy is preferably aimed for relief of the disordered system, which, when righted, spreads relief to all expansions of discomfort. Neuralgia, rheumatic irritations, inflammation cover scores of disconsolate sensations. They are basic divergences from normal quality of blood. Whether it is a pleurisy, a pneumonia, a pharyngitis, a spinal meningitis, it is yet an inflammation at base, practically all of the same nature—the location involved affording the difference in symptom, in name and result. The remedy that serves for one case serves equally well for all on systemic principles. We treat all through the blood by systemic routine. In doing this we are not really treating for different diseases. We are treating for a basic condition of that many manifestations. In this we must become aware of relative unity of disease confirmed by relative unity of therapeutic treatment. When the forces of inflammation are ablaze, when the seat of conflagration cannot be reached except by dispelling or suppressing the fires of the feeding vessels that thrash the gorged and striving organs or tissues with blood carrying deoxygenated, or dying, possibly dead corpuscles, we pour in systemic lines of remedies without hesitation or reserve—roundly the same medicine for all sorts. Do we wait to inquire if it is a comma-tailed, a banana-shaped speck of ferment that has blubbered up in the serum, because of the heat and disintegration incident to disordered conditions, before we decide what medicine should go in to arrest the process of decomposition threatened in the case?

Preferring to avoid the personalities of mentioning names and places, I ask attention to the following for consideration of "germ" pathologists. In an interesting account, a physician reports in public print a case of certain local inflammation, which resolved itself into the transformation of a moderate but painful abscess. When punctured, offensive material was discharged containing three varieties of bacilli. Now, then, if a bacillus, ab initio, is the breeder of any form of local inflammation, which variety of the three was the instigator of this abscess? And how did it "get there" and there only, as the pathological forerunner or harbinger of that distressing local dissolution? Also, being there, as presiding instigator, how were the two other varieties developed in the same place and physical debris? Was there local cross-breeding? Spontaneous transformations of shapes? Gregarious dissipation of characteristics? Lawlessnes of coherence to original identity? Haphazard product of abnormal conditions? If this be so—and it cannot be proven otherwise—what bacillus can or should be relied on for the diagnosis of any defined diseased condition? Also, if there is any separate treatment indicated to meet the

emergency of the invasion or presence of any separate form of bacillus in any given case of illness, what sort of "mixed treatment" should be ventured for the suppression of disorders inhabited by a mixed crop of ferment microbes? Or yet would it be wiser to aim straight for the relief of the disease, on systemic principles, independent of any or all sorts of bacilli, and thereby let the local group of ferment bacteria be blotted out by the process of auto-annihilation because there is no longer diseased material to give them origin? It has been claimed that there is a bacillus that causes typhoid fever, another that causes influenza, another that causes diphtheria, another that develops consumption, and so on inscrutably. It has always been an unexplained problem to me how nature and season sort out and adopt these imputed agents of differing expressions of disease, except under incitants of correlative conditions that first disorder the system and put into operation the evidences of temporary results. As regards treatment, would not the same treatment by pharmaceutical agents knock out every sort of bacillus alike? Who says "No"? Since there is unity at the basis of many common diseases, or expressions of disease as a systemic disorder, is there not unity also in the elementary nature of bacilli? Else why does the same medicine relieve most forms of disease alike? I once conversed with a doctor who had been a pharmacist and accustomed to fill his shelves with hundreds of different kinds of drugs because the variations of inventory preparations prescribed by doctors required it. I told him that with ten standard remedies of my own selection and compounding in varied combinations I could conduct a very successful practice. Immediately he went me seven better—that with three medicines he could reach the actual needs of the sick. Since this is not a lecture, but a conference, it is well worth the physician's comfort of mind to discover that a well-chosen few remedies that are safely adapted to the natural operations of the chemistry and machinery of the human body are most helpful in disordered conditions for general reliance. That mastery of medicine removes a mountain of brushy anxieties under most circumstances. From seven bottles containing capsules filled with remedies of his own compounding, the present writer conducts his general practice on systemic principles—and with success. He has occasion to write a death certificate about once a year. To his general remedies he may add a granule of this or of that occasionally for reinforcement of effect. A few antiseptic soothing liquids for throat or ear or abscess washes supplement the needful outfit. In any case he never has a bacillus in mind—but believes in the virtues of simple sanitary cleansing of unhealthy surfaces—to disencumber nature by removal of debris. Simple cleanliness of person, of home surroundings, of the freshening breathing-air will accomplish better results than double drugging aimed at special symptoms.

If constitutional disease is the disturbance or impairment of normal functions, the step from health to disease or initials of diseased conditions may be short, unexpected, disguised. If I would take close hold on the case, I immediately, before the patient's vitality becomes reduced to an artificial broken status, start in by investigating the home and business environment, so that by correcting or removing the disturbing cause, the suffering system may be enabled to reinstate balance and harmony of its normal functions in conjunction with the relief of appropriate remedies administered—for I am a believer in the help of medicine. But a prompt abatement of surrounding aggressive influence will usually shorten the illness and even constitute the real groundwork of effective cure. The crowning progress of medical wisdom requires enlarged comprehension of the dominating causes of disease in daily operation about the people. The drug introduced into the system does not alone cure disease. If the vital current be impaired in elements and quality, even for one short week or month, nervous depression or derangement follows as directly as that one from three leaves two. The tone and systemic co-ordination recognized as health have lost a valuable factor which will be recovered only by restoring to equilibrium the fountain of nutrition, construction, repair, nervous energy, vital force. Integrity of the feed-current or corpuscular solvency, the builder and electrifier and defense of every cell, tissue and organ, is at once the natural preventer and the healer of all diseased conditions. The lack or lapse of these sterling qualities constitutes the sum total of disease in whatever shape it appears. And there we are every time. Which way we follow the threads of the problem we come around to the same point to begin the use of our remedies. Blood depression, nerve exhaustion, shock, worry, or any other constitutional defaulter calls for the beneficence of means to promote corpuscular rejuvenescence. Many people seem to be always in fear of disease. But unless, through impurities of air breathed, defective material bias the blood, floating from organ to organ, irritating and incapacitating constituents of circulation, there need be little danger of disease during the valuable span of life allotted by the Psalmist. Then why so many ailing, suffering, dying in the bloom-time of life—so few really cured instead of but temporarily relieved? Medical mediation of even finest merit often fails of solid success—and the world is as full as ever of pain and dread and mortal collapse—spite of advanced civilization, educational prestige, medical progress, improved drugs, refinement of our mental theories? Is it not because the impressible human is so continuously surrounded by injurious elements in the breathing-air that there is corresponding tendency to physical realpse? Study it out. Does not this prejudicial breathing-air prevail at the homes, the business places and with railroad conveyances used in travel? Long journeys are usually decidedly detrimental and fatigueing—winning more exhaustion than vigor. Many men and women speedily succumb after taking long journeys for improvement of health. They went for rest—which they found in the grave on their return.

The overstrain of extra fatigue softens the defensive properties of the human system to any other grievance against nature. Following the Centennial Exhibition in Philadelphia in 1876, where so many visitors overwore their normal fund of energy, typhoid fever was a very general sequel. The intense heat during July and August that year doubtless induced increased prostration. For several years latterly Philadelphia has been haunted with typhoid fever in epidemic proportions. Our local germists contended that the cause was impurity that drained

into the Schuylkill River, the stream that supplies water used by city families. At great public expense a system of filtration has been in process of construction. The resourceful health authorities and strenuous newspapers have persistently censured the water supply as special cause of this typhoid, and millions are being expended in erecting great filters—which thus far have afforded enormous graft to the contractors without corresponding sanitary advantage to the public. The filter beds may strain out mud for several days and then themselves become beds of mud. Filters will never screen out the supposed bacillus of typhoid because that bacillus is home-bred in the afflicted. Recently we have a freshened increase of typhoid fever in the ward popularly known as Manayunk—to the surprise of our over-confident Health Board and the trustful public, because Manayunk has been in receipt of filtered water for several years. In one week in September there were developed seventeen new cases of typhoid in Manayunk village alone, while in most of the other wards of the city, where as yet filtered water is not supplied, the official report shows mostly but two or three corresponding new cases. Something besides filtering is required to suppress typhoid. To swap back, it was published that our health authorities made investigation which disclosed the point that the extra typhoid contracted in Manayunk was in persons who had been away on their vacations. That may have been the initial to the fact. It is well known how many folks use themselves up literally by excessive strains after pleasure because they are trying to enjoy "vacation." But why did vacation prove so much more disastrous to folks from the filtered water ward than from the other wards of the same city? How would persons from one ward run up to infesting typhoid germs more than pleasure seekers from the other wards? Let us be consistent, or let us keep still.

Disease is not the product of a festering germ. What of the artificial necessities, the pestering restlessness of modern life, added to its conventional rivalries and vanities of all sorts which press people to the dizzy edge of everything which makes life sweet? It requires purer air and more tonic than most of us enjoy to sustain the heart and lungs and vital forces in the clash of daily exactions. Amid these strivings of humanity there drifts insidious agents of decay, which deceive the ambition of the thoughtless, intercept human plans, bankrupt physical and mental ability, baffle the province of medical skill where drugs are relied on to overcome the defaults of crippled nature. More than half of these unhappy and nearly undefined cases are really suffering with the toxemia and toxanemia of inhaling poisoned breathing-air common to the abodes and resorts in general of mankind. Air must have in itself the vitalizing elements of normal oxygenation of the blood and every cell of the body, or humanity is ailing in a hundred ways. The one disease of all these manifestations is defrauded, impoverished, deficient integrity of blood. Our stoves and heaters, our abominable kerosene and gas stoves, our coal oil lamps and gaslights, our chimneys and smokestacks perjure the common air we breathe in home and hamlet, in town and city alike, unless special attention is constantly exercised to neutralize noxious qualities by wise cautions and constant ventilation day and night. The season of year is now with us to close in with the toxic carbonic oxide poisons from the combustion of our fuels and illuminants in aggravated density because of the use of artificial heat and increased hours for lamps and gaslight. Gas colds or throat and tracheal irritations caused by inhaling gassy house air—very probably during the night with shut-up house, will be common from now till spring again opens the windows and the weather allows more outdoor life. Influenzas, pneumonias, nerve exhaustions and neuralgias will repeat their dragging discomforts. And withal, how many new cases of pulmonary consumption will be inaugurated (by the "colds," but really by local gas poisoning of lungs) before the time returns for new buds and summer blooms? These diphtherias from gas-poisoned throats and blood, these nerve prostrations and melancholias from poisoned nerves and brains—all auto-developed because of deficient oxygenation—what shall we do with them?—how do we propose to treat them most successfully? I know how I propose to manage my cases. My investigation begins at every fire draft, flue and chimney, to make certain that no obstruction of ash, or soot, or brick, or leak place is backing fuel gas into the house air. I see that no damper is turned across the draft space that would thereby back the fire gas and poison the house air. I will win my way to oxygenation by the aid of open windows. The heads or faces of my patients will be turned as far away as possible from heating stoves and dry-air registers. This will be done by changing the location of bedsteads, so that the sufferer will not be compelled to breathe the drift from the fires. Earthen crocks containing clean water will be placed smack up against every dry-air register to refresh the hot-air drift with a respirable degree of moisture; and cheese cloths will be tacked over every register to screen out the caustic ash or dust arising from the heater fires under any circumstances. I will be seeking every opportunity to assist nature, aided by my therapeutics and liberal foods, to transport my case to as speedy recovery as possible. I will think no more about "germs," "bacilli," in any case, than I will think about white oak trees pulling themselves up by the roots and walking into the rooms of the sick. I will care no more about the bacteria incidental to disease than I will be caring about the beard of the man in the moon.

So pronounced are the effects of inhaling gassy air in tunnels when in course of construction, that the disorder is termed "Tunnel Sickness." To construct a long tunnel means a precarious proposition to the health of those engaged in the work. There are tunnels from one to twelve miles long. Both laborers and superintendents are frequently attacked by vertigo, impaired consciousness, and first symptoms of asphyxiation. They are troubled with headache, nausea, muscular fatigue, physical inability to do their work. They experience impairment of the use of their legs. Mentally, according to Dastre, the memory weakens, the ideas tend to become confused, the mind grows sluggish, with a propensity to errors of judgment and direction, and deadening of the senses, particularly of hearing. Men kept from four to eight hours a day in a railroad tunnel frequently develop a chronic poisoning, indicated by habitual headache, loss of appetite and flesh, weakness, pale-

ness, an anæmic condition. Locomotives detained in a long tunnel endanger life of some trainmen because of vitiation of the close air produced by the gas and smoke emitted by the locomotives. The ratio of oxide of carbon contained in the locomotive smoke, by robbing the blood of its ability to combine with oxygen causes partial asphyxiation. This experience of trainmen after a tunnel is operable is really the same thing as tunnel sickness experienced by workmen when in course of construction. The gas in tunnel work is from the illuminants burned to make light by which to work—also from explosives for blasting purposes, and doubtless from locomotives to haul away rock and earth. It all means absence of pure air for breathing service. Before another June hangs her roses in the fresh and fragrant air, if we live, we will doubtless have recited to us many of similar symptoms detailed in this account of the tunnel sickness, and some of us will not fail to look after the subtle carbonic gases infesting our patients.

1726 North Twenty-second Street.

PROBLEMS IN TUBERCULOSIS TO BE MET BY THE GENERAL PRACTITIONER.

BY WALTER BERGER, M.D.

THERE are two processes taking place in the tuberculosis patient, as Gulf has shown: First, changes of mental temperament probably due to the action on the nervous system of the toxins elaborated by the tubercle bacillus; and, second, modification of the character due to mechanical interference with the cerebral functions following the deposit of tubercle within or on the brain. The characteristic feature of the general psychology of the tuberculous is instability, feverish activity by periods of intense depression, phases of despair giving place to the elaboration of plans for a distant future, fits of hypochondria, relief from which is sought in intense application to work, a reckless indulgence in sensual pleasures and exaggerated idealism with a tendency to sentimentality and generalization. During the stage of invasion a certain tendency to refinement is noticeable, both physical and mental, and the artistic and imaginative faculties are often stimulated to unprecedented feats, doomed but too often to failure by abrupt collapse of physical energy, while the tendency to take a sanguine view of things becomes more marked as the disease advances. When a patient first learns that his lungs are affected he usually displays great anxiety and is depressed, but the mental depression gradually subsides until at the terminal period, in spite of overwhelming evidence that his days are numbered, the victim makes plans incapable of achievement in the brief space of life that remains.

Burnham, in a recent issue of *The New York Medical Journal*, states that the State of New York in establishing a sanatorium for the treatment of consumptive poor in the incipient stage, by an act of the legislature in 1900, placed the State second in the list of States providing for the sanatorium care of this class of patients, the Adirondacks being selected for the location of the sanatorium. Work was begun at once and completed in November, 1904, while actual operation with the reception of patients began June 20, 1904, this having been made possible by an appropriation of the legislature in 1903, providing funds for the building of tent camps. Two tent camps for males and females, respectively, were constructed and used during the summer of 1904, some 40 patients were treated, and in November, the main building being completed, the number was increased to 100. These buildings consist of a main administration building, in which are the officers, the general dining-room for patients on the ground-floor, kitchen and scullery, laundry, and engine and dynamo rooms in the rear, while connected with the administration building by a large solaria are two pavilions for men and women, respectively, constructed like the main building, of brick, with stone trimmings. The interior arrangement of pavilions shows rooms suitable for the accommodation of from one to three patients each, but there are no wards. This plan of building has many of the advantages of the cottage system and saves greatly in the cost per capita for housing, which is a most important factor. The buildings face the south, and on the fronts of both pavilions are protected verandas on each floor, allowing life in the open air at all times, even in the worst winter storms. As required by law, the institution is for the reception of incipient cases of tuberculosis only, while, beyond the factor of incipiency, the only other factors of eligibility are that the applicant shall have been a resident of the State for at least one year before making application for admission, and that he shall be unable to provide for his care, and consequently be a proper charge on the county or town of which he is a legal resident. One exception is made by law, namely: that pay patients, at a stipulated rate to be decided by the board of trustees of this hospital, which at present is $7 per week, may be received if there is room at the sanatorium for their reception, without making it necessary to reject purely charity cases which make application and are suitable cases. Application for admission is made upon the official form which states the history of the case and that the patient is unable to pay for treatment, and such application is signed by the overseer of the poor or the commissioner of charities of the town or county of which the applicant is a resident, and by this application the town or county assumes the responsibility for the maintenance of the patient at the rate of $5.00 per week. Upon receipt of such application, examination of the case is ordered to be made by one of the State examiners, of whom there are two in each city in New York State of the second class, and four in each city of the first class. Final decision as to the reception or rejection of the case is made by the superintendent upon his examination. For those wishing to come as "pay patients," direct application by letter to the superintendent, followed by the official examination as in the case of the charity patient, is the course to be pursued. Burnham reports the results obtained in the last year's work of the sanatorium, as follows: "I beg leave to call your attention to the following classification of cases and results, presented by the Nomenclature Committee and adopted by the National Society for the Study and Prevention of Tuberculosis at the last annual meeting held in Washington, April, 1905. I would say that it is to be tried for one year, and if after the year's use modifications are deemed necessary by members of the society, they may be made at the next annual meeting. An incipient case is defined as follows: 1. Incipient (Favorable).—Slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe. No tuberculous complications. Slight or no constitutional symptoms (particularly including gastric or intestinal disturbances or rapid loss of weight). Slight or no elevation of temperature or acceleration of pulse

at any time during the 24 hours, especially after rest. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent. The duration of disease is not mentioned. In other words, the question of time is left out in considering an incipient case. Burnham believes that this omission should be noted and some recognition made of the point in question, for the reason that it is the opinion of the profession in general, as I see every day, that because a patient has noted symptoms for only a short period of time the case must of necessity be incipient. This is obviously not true if one stops to consider the question of prognosis as determined by the case as a whole, which it is most necessary to do, as in our present classification of incipiency we have made a case entity, considering not the lung involvement alone, but the manifest symptoms presented by the patient plus the amount of lung lesion. A case may be incipient and still the patient may have had the disease many months, and it is impossible, if we come at once to facts, to know how long any one case has been tuberculous. Horne pleads for the conservation of the larynx by rational therapeutic and surgical treatment. Postmortem examinations have shown: 1. That when the larynx is infected with tubercle the disease is already established in the lung. Primary tuberculosis of the larynx is a negligible quantity. 2. That the disease in the larynx progresses pari passu with that in the lungs; when the disease in the larynx presents ulceration that in the lungs has advanced to cavitation, and vice versa, when that in the lungs has become arrested, then that in the larynx heals. 3. That when the disease in the lung is confined to the pure miliary form the larynx is not infected. 4. That infection of the larynx takes place by the sputum from the lungs. Therefore, improvement in the larynx following treatment will coincide with the improvement in the lung. Remedies directed toward rendering the lungs aseptic are of considerable value in preventing infection of the larynx. Sanatorium treatment, both directly and indirectly, is beneficial to laryngeal disease. It improves the pulmonary condition and reduces the frequency of laryngeal complications; it affords rest of voice and promotes healing of laryngeal lesions. Local applications, both paliative and remedial, should form part of the sanatorium treatment. In the more advanced cases, surgical method may be necessary; an enlarged epiglottis may have to be reduced or removed. Edema of the larynx may be overcome by linear scarifying. Infiltrated and thickened parts may be treated with the galvanocautery or by longtitudinal incisions with a sharp knife. Indolent ulcers may be curetted and treated with lactic acid; but lactic acid applied to an unbroken surface is of no avail and only causes distress. The surgical treatment of the disease has its limitations, but within those limitations Horne has seen benefit afforded. He does not, however, favor extreme surgical measures; at their best they are only mechanical means of overcoming physical difficulties.

In the *Journal of the American Medical Association* the question of the effect of mercury on tuberculosis is considered. To answer this question necessitates a brief statement of the pharmacological action and consequent therapeutic uses of mercurial preparations. For a long time mercurials have been employed by the medical profession, and it seems that after many years of extensive use, knowledge on this subject should begin to crystallize, but the crystals are not perfect and recrystallization will doubtlessly have to be repeated from time to time, but our knowledge concerning the action and value of mercurials in the treatment of disease is much more positive and exact than our knowledge of the great majority of medicaments prescribed daily by the most intelligent members of the profession. The therapeutic uses of mercurials apparently approved by professional experience are as follows: 1. As a cathartic. We have been repeatedly told by physiologists and pharmocologists, who have experimented on animals with artificially established biliary fistulas, that mercury is not a cholagogue. Indeed, these scientific men tell us that there is not a real cholagogue in our whole list of therapeutic agents, and by this they mean that there is nothing which is safe doses at least will increase measurably the quantity of bile formed by the liver within a given time. This is probably true, and it is well that it is so, because if we possessed such an agent it would be capable of doing great harm, and it is difficult to conceive of conditions in which it would be of great service. What the practitioner means by a "cholagogue" is an agent which aids in the expulsion of bile from the gall bladder and gall ducts into the intestines, and in certain conditions the practitioner, from thousands and tens of thousands of practical observations, is convinced that he has such an agent in calomel and other mercurials; the findings of the laboratory men have been contradictory to one another, or at least not uniform, but the intelligent physician knows that he frequently meets a condition which after all is best described by the the term "biliousness," in which the mercurial cathartic gives him better results than anything else. Experience in this case confirmed by more scientific evidence, shows that the mercurials furnish good, in some conditions the best, antifermentative cathartics. Our profession has learned, by its mistakes, that the continued administration of mercurial cathartics is not free from danger, but it has with equal certainty established the fact that in single large or in broken doses calomel in properly selected cases gives better results than any other purgative. 2. The specification of the mercurial preparations in syphilis is as well established as that of quinin in malaria. The evidence on this point is overwhelmingly convincing. Mercury, in whatever avenue administered, combines with proteids, and the inference from its specific action in syphilis is that it has a selective effect on the virus of syphilis and the proteids of cells that have been altered by this virus. In non-syphilitics the continued administration of mercury leads to cellular degeneration and disintegrations. This is shown conclusively by the characteristic calcareous deposits in the kidneys in chronic mercurial poisoning; in fact, so frequently has this condition been observed and so carefully has it been studied that a diagnosis of mercurial poisoning may be made from this finding alone. It is pathognomic, while mercurials in other chronic diseases than syphilis are cell poisons. In tuberculosis and other wasting non-syphilitic diseases the chief object in the adoption of any therapeutic measures is to feed the cells of the body and not destroy them. It follows, therefore, that in these diseases mercurials, at least their continued or frequent administration is contraindicated. In cases of coexistent syphilis and tuberculosis, mercurials are not contraindicated. In cases of this kind the regular syphilitic treatment should be carried out. It will have a good effect on the patient by relieving the cells from the necessity of contending with the syphilitic virus and will thus indirectly and for the time improve the tuberculous condi-

tion. Even tuberculous syphilitics, as well as the non-tuberculous, may gain markedly in weight under mercurials.

As to menstrual fever in phthisical women, Sabourin concludes that this recurring fever in women who, in many instances menstruate not at all or only very little, is not a matter of great importance, notwithstanding the monthly repetition of more or less pronounced congestive phenomena relating to the lungs. It had no bearing upon the development of tuberculous lesions. They may remain in bed or not during the existence of this fever, the same as if the sufferers were not tuberculous. For those who have a tendency to hæmoptysis it is better to remain in bed when the catamenial crisis is present, and remain there during its entire duration. Hæmoptysis almost always precedes the menstrual flow and is arrested after the flow has been established. In cases of dysmenorrhœa one may administer hot drinks, sinapisms, foot baths, hot applications to the abdomen, etc. Should hæmoptysis persist after the menstrual flow has occurred it may be treated by simply restricting the diet for twenty-four or forty-eight hours as a means of reducing the congestion. If amenorrhœa has supervened no treatment will be of much use, except that which will improve general nutrition. The discovery of tubercle bacilli in the sputum is a positive proof of the existence of tuberculosis of some part of the respiratory system. It will hardly be questioned that the establishment of this fact constitutes the most important advance from a diagnostic point of view; but we may go further and assert that the increased precision of diagnosis thus obtained exercises a most potent influence on the subject of treatment. For the fundamental discovery of the pathogenic relations of the tubercle bacillus we are indebted to the genius of Robert Koch, but it is mainly through the researches of Ehrich that the application of Koch's discovery to the needs of clinical medicine has been brought to a successful issue, for, thanks to the improved methods devised by Ehrlich, it is possible for every physician to learn with a small amount of practice to prepare a specimen of the sputum for examination in a few minutes, according to Kidd's method. Care must be taken to obtain a sample of the patient's sputum that comes from the respiratory passages or lung itself, and when the expectoration is very scanty, it will often be found to consist mainly of pharyngeal mucus. Secretion from this part is commonly very tenacious and is expelled by forcible hawking efforts. At other times the sputum is composed of little more than saliva. The best plan is to direct the patient to collect in a clean vessel the morning expectoration, which is generally voided with less effort, and, representing, as it does, the secretions accumulated during the hours of sleep, is more likely to contain a mixture of the sputum from different parts of the respiratory tract. To select a portion for microscopical examination, pour the expectoration into a flat glass dish and then to inspect its macroscopic characters against a dark background. The most suitable parts are the yellowish streaks or specks which can generally be recognized even in what may appear at first to be a purely mucous sputum. Where the expectoration is more or less opaque or yellow throughout, the thickest and most opaque or curdy parts are to be chosen. To remove the requisite portion we may use a small scalpel, a stout platinum wire with a loop at the end, or, as Ehrlich recommends, a fine steel pen with one of the nibs broken off and mounted on an ordinary penholder. A minute quantity of the sputum is transferred to a perfectly clean thin cover-glass, and another clean cover-glass is place on the first; the two glasses being then gently pressed together between the thumb and forefinger, or with a clean pair of forceps, so as to spread out the sputum in as thin a layer as possible. This latter plan prevents any oily matter from the fingers becoming deposited on the cover-glasses. If the sputum be very tenacious and will not spread out easily, it should first be allowed to dry partially, and now when the glasses are pressed together it will be easily distributed in a thin uniform layer on the two surfaces. The cover-glasses are then separated by a sliding movement and are allowed to dry thoroughly. Next they are picked up with the forceps and rapidly passed, face upward, three times through the flame of a Bunsen burner or spirit-lamp to coagulate the albumen, after which they are ready for staining. The following reagents are required. 1. A solution of fuchsine, or magenta, either (a) Ehrlich's solution, consisting of eleven cubic centimetres of a saturated alcoholic solution of fuchsine and one hundred cubic centimetres of a saturated watery solution of aniline oil. This solution will not keep more than a fortnight, and is best prepared freshly each time it is wanted. Or, (b) Ziehl's solution, consisting of ten cubic centimetres of a saturated alcoholic solution of fuchsine and one hundred cubic centimetres of a five per cent. watery solution of carbolic acid. This solution is much more stable, and may be safely used for months. 2. A solution of one part of commercial nitric acid to three or six parts of water. 3. A concentrated watery solution of methlene blue. Ehrlich recommends that a few drops of ecetic acid be added. The cover-glasses are now floated, face downward, on some of the freshly filtered fuchsine solution in a watch-glass or shallow glass capsule, and the fluid is heated on a sand-bath or over a spirit-lamp until bubbles begin to rise. Heat is then removed, and the specimens are allowed to remain in the hot solution for four or five minutes longer. The cover-glasses are next removed with forceps, the excess of fuchsine shaken off, and they are dipped into some of the nitric acid for two or three seconds, and then quickly washed for about ten seconds in a gentle stream of water flowing from a tap. The sputum, which has a deep-red color when removed from the fuchsine, acquires a yellowish-gray appearance when placed in the acid, but when washed in water the red color reappears. The cover-glass is now floated in a small quantity of the blue fluid for about a minute, after which it is washed again in a stream of water for about five or six seconds. The excess of water is then drained away and the cover-glass allowed to dry. Drying may be hastened by gently pressing the cover-glass between layers of filter-paper. The dried cover-glass is finally mounted in a drop of Canada balsam dissolved in benzol of xylol, and is now ready for examination. With this method of preparation the tubercle bacilli appear as delicate red rods varying in length from one-quarter to one-half the diameter of a red blood-corpuscle. The bacilli may be stained a uniform bright crimson; the staining may be unequal, leaving small unstained areas; or the micro-organisms may present a beaded appearance, giving the impression of a string of red granules. The last mode of staining has been attributed to the presence of spores contained in the sheath of the bacillus. No definite importance can be attributed to these morphological differences. Various other bacilli and micrococci present in the sputum, as

well as the nuclei of cells and threads of mucin, take the blue stain, contrasting strongly with the red tubercle bacilli. Ehrlich explains the results of his method as follows: For the efficient staining of the tubercle bacilli the combination of a salt of aniline with aniline itself is necessary. The double compound thus formed is an oily, comparatively insoluble substance of a very brilliant color, which becomes deposited in the protoplasm of the bacilli and cells generally. It is known that tubercle bacilli take up watery solutions of the aniline dyes with difficulty, but they are readily stained when certain of these dyes are combined with aniline-phenol. Ehrlich concludes that the bacilli are provided with a delicate sheath endowed with certain peculiarities. This sheath resists the passage of watery and acid solutions, but is readily permeated by alkalies and oily substances like aniline and phenol. The aniline therefore plays a double role: it combines with one of its salts, fuchsine (hydrochlorate of rosaniline), to form a pigment of the requisite brilliancy; and it also moistens or alters the bacillary sheath in some way so as to allow of the diffusion of the pigment into the protoplasm of the bacillus, where it is deposited in fine particles. When a strong mineral acid like nitric acid comes into contact with the pigment, it converts it into a very soluble triacid salt, and thus the cells, mucin, etc., are decolorized, but, owing to the resistance of the sheath of the bacilli, the acid does not come into contact with the pigment deposited in their protoplasm for some time, and the staining persists. Prolonged exposure to the action of the acid results in decolorization of the bacilli also, but for a certain period of time, which varies somewhat, the addition of water causes the red color to reappear. This is believed by Ehrlich to depend on the decomposition of the triacid salt, by water, into the mono-acid pigmented salt and free acid, and he supposes that, through the prolonged action of the strong acid on the delicate sheath, the latter becomes so altered that it permits the diffusion of the comparatively small molecule of nitric acid but resists the pasage of the highly complex and large molecule of rosaniline hydrochlorate. Consequently, the pigment remains deposited in the body of the bacillus. For the examination of the preparation of sputum a magnifying power of about two hundred and fifty to three hundred is sufficient if the illumination be brilliant. Abbe's substage condenser is a great help and renders the detection of the bacilli much easier, and, in doubtful cases where the bacilli are very scanty, the combination of Abbe's condenser with a one-twelfth oil immersion lens is to be recommended.

According to the statement made in the first annual report of the Henry Phipps Institute, tuberculosis is on the decrease in Philadelphia. Based on the results of investigation of the official records from 1861 to 1903, inclusive, the report shows a rapid decrease from 1887 to 1897, inclusive, a slight decrease prior to 1887, and a slight increase after 1870. In 1870 the mortality from the disease was the highest, the death rate being 3.78 for 1,000. The report attributes this to the influence of the Civil War, which had just closed. From 1871 to 1874 there was a steady decline, but from 1874 to 1876 there was an increase of 0.37 per 1,000. This may have been accounted for, they claim, by the large number of persons visiting the city during the exposition and by the epidemic of smallpox in 1872. The apparent decrease from 1876 to 1880 is not a true one. It was estimated on the figures published by the board of health, which were disproved by the census of 1880. The mortality in 1880 was 3.27 per 1,000. From that time to 1902 there has been a continual decrease, but in 1903 there was an increase of 0.12 per 1,000. This slight increase may be due in part to a great increase in emigration from Russia and Poland, it having been double that of the ten previous years. The principal cause, however, they believe, is the accuracy in diagnosis through the bacteriological department of the board of health. The report further shows that in 1903, 2,039 patients were received and treated in the Henry Phipps Institute; of these 1,130 were native born, 769 were foreign born, and 140 had no nativity record. Many of the foreign born had been in this country so short a time that it was assumed they had the disease when they landed here. The number of negroes admitted was about 6½ per cent. of the whole number, but the proportion of negro admissions to white admissions was greater than is the proportion of the negro to the white population of the city. The longest stay of any patient in the hospital was 286 days, and although this was an advanced case the patient improved steadily. The results of treatment show that 537 cases were reported improved, 583 unimproved, 884 not recorded, and 153 died.

THE NEWER SURGERY OF THE INTESTINES AND LIVER.

BY A. R. WILLIAMSON, M.D.

PART II.

In perforation in typhoid fever successful cases continue to be reported in what was previously considered a hopeless complication. For example, Platt lays stress upon the necessity for a rapid operation through a right lateral incision, the lushing or wiping away of the extravasation, suturing or even excision of the ulcer and subsequent drainage. It is most vital to operate as soon after the perforation as possible. The sutured perforation in the intestines tends to firmly close, but not so the abdominal wall, owing to the patient's lack of repair. In one man, who lived forty-five days, no union occurred, and when the stitches were removed the edges of the incision fell apart. Cushing's experience serves to show that no great harm ensues from an exploratory operation, even although no perforation is discovered.

In operations for tuberculous peritonitis, Tillmann has collected three hundred and fifty-eight cases, of which among one hundred and thirty-one of these, one hundred and seven were restored to good health; thirty-four continued well three years after the abdominal incision, with removal of the effusion and drainage. In this connection, the operation practiced by von Eiselsberg on the suggestion of Salzer, of Utrecht, in 1891, as an alternative to making an artificial anus, is interesting, for it is applicable to irremovable cancer to prevent obstruction and to fistulous conditions, such as gastro colic fistula, to stop the fæcal vomiting. The intestines are divided above and below the disease, and the proximal connected with the distal end; the two ends of the diseased piece of gut should be fixed to the skin and then the disease loop can be washed through. It has been suggested to close the diseased loop by infolding each end or by joining them to make a ring; the discharges from the cancer will accumulate in the loop thus shut off, and ultimately rupture with extravasation of its contents.

In chronic colitis and idiopathic dilatation of the colon Treves concludes that the idiopathic dilatation is of congenital origin, being relieved by excision, but there are also cases which occur late in life, in whom no obstruction is to be found, nor does chronic constipation afford a complete explanation. There appears here to be some local failure of innervation where colotomy does not appear to be suitable.

In studying cancer of the colon authorities report that the adeno carcinoma of the large intestine is a favorable form for resection, as the glands are not infected early, but unfortunately it is difficult or impossible to detect such a growth under one or two inches in diameter in certain situations, such as at the junction of the sigmoid and rectum or about the hepatic or splenic flexure. As a result the surgeon has generally to operate in an advanced stage of acute intestinal obstruction, and death usually follows from exhaustion and intestinal paralysis. The only practical way to handle such cases would be to explore early, as soon as a chronic intestinal obstruction is diagnosed. In other abdominal positions a tumor may be felt at an early stage before it has reached the size of a hen's egg, as in the cæcum and first part of the ascending colon, in the middle of the transverse colon, at the end of the descending colon, and upper part of the sigmoid flexure, but, unfortunately, a tumor will not always select these locations.

To unite a divided intestine the question of the best method is still discussed, but the concensus of belief is toward the "Murphy Button." Treves, in a suggestive paper on "Some Rudiments of Intestinal Surgery," thinks it is the best appliance at present for the union of divided bowel, having employed it in fifty cases with satisfactory results; its advantages are that it requires no elaborate preparation, it is always ready, its introduction is exceedingly simple, and is effected in a few minutes; the two parts of the instrument may jam, but Treves thinks this accident is the result of careless handling. The two definite and undoubted objections are these: It may be indefinitely retained, and its separation may be followed by contraction of the artificial opening. The explanation of the cases of contraction of the opening in the stomach or in the colon is that the upper viscus is much dilated at the time of the operation; after the operation the dilated organ contracts and consequently the newly made hole contracts; where distension of a viscus exists contraction may follow any method. Of the various forms of suture, Treves thinks the ancient one of continuous suture of the mucous membrane and Lembert's suture externally is the best, and he thinks that experiments on animals are no help to the operator when he comes to operate on the human intestine.

Chlumsky is somewhat pessimistic, for he thinks an absolutely perfect method of intestinal anastomisis is yet to be discovered; he has made a microscopical study of the union produced by various methods, the results of which he will publish later. He has used Albert's double row of sutures (using the continuous suture in place of the button suture), Murphy's, Frank's, and other buttons, testing the strength of the anastomosis by direct traction at one end of the bowel loop, but this was inexact and unsatisfactory; he then tested it by the amount of water pressure the anastomosis could stand without rupture. He found that there was no essential difference in the firmness of union by suture or button anastomosis; both stood about the same amount of pressure; circular anastomosis stood a higher pressure than lateral anastomosis, while in recent suture anastomosis he found that the perforation was almost without exception where the knot of the continuous suture lay. He discovered that all forms of anastomosis were very friable between the third and the fifth day. Adhesions to neighboring organs were regularly present, especially to the great omentum, but after weeks or months the adhesions were less numerous, but in only two cases were they absent. In one case where the serous coat was sacrificed after Wolfer's method the adhesions were so complicated that the seat of anastomosis could with difficulty be found. His experiments with the various forms of button were not very satisfactory and Chlumsky concludes that a button must stay in a dog's intestine for at least five days in order to mechanically protect the place of anastomosis; if it stays longer than eight days it is apt to cause necrosis. In one case a Murphy button came away on the third day just when the anastomosis required the most protection; in another case it caused perforation on the third day. With decalcified bone bobbins things were even worse, for all forms, particularly Frank's, were absorbed very early or were soon passed partially digested, while hardening in formalin or partial decalcification was unsatisfactory.

Wolfler, in forty cases, used Murphy's button; in two cases the bowel became adherent, while the button lay for weeks as an obstruction till an artificial anus was formed. He has operated with Frank's button in six cases of bowel resection, and three of gastro enterostomy with success, though two separated. From his own observations and experiments with dogs, he found most of the buttons labeled soluble were absorbed completely on the fifth day, whereas union could not be anticipated before the sixth day. Jordan used in eighty cases Murphy's button with the results superior to any other, although he regards it as contra indicated in the colon where the walls are thick and the fæces more readily choke the passage at this point.

Another absorbable button has been devised by Smith, who regards Frank's button as uncertain and dangerous. This new button is like Murphy's, except that the disc is made of ivory, and the two screws, as in Murphy's, of metal, and for gastro enterostomy the disc may be covered with india rubber to retard absorption. From experiment on dogs he finds that in gastro enterostomy the button remains unaltered for three days, and absorption begins on the fifth day; in the human subject absorption would begin later. In this connection Frazer suggests that in simple suture of the intestine the two ends of bowel should be rotated somewhat, so that the plane of the mesentery of one segment lies behind that of the other, instead of the mesentery of each being exactly opposite the other; he thinks this would avoid any danger of leakage, as non-serous surfaces will be opposed to serous surfaces, followed by earlier adhesion.

In volvulus, the point which strikes Littlewood in cases of intestinal obstruction is the difficulty of making a diagnosis; out of the seven cases he only made a correct diagnosis in one. Previous constipation did not play an important part; while in some cases visible peristalsis was noted, which was probably in the bowel above the twist. The treatment varied in his cases: in one case the volvulus was simply untwisted after

letting out the gas; in two cases the anus was dilated and the contents of the volvulus and colon were simply squeezed out without opening (these two recovered) the bowel, the after treatment consisting of saline purgatives and washing out the bowel; in another case the contents of the volvulus were evacuated after incision; in the fifth case the volvulus subsequently became gangrenous and was removed and the intestinal continuity was restored later.

Halsted describes a new method of uniting divided intestine over a dilated india rubber cylinder. The method consists in roughly approximating the cut ends of the intestine, by means of sutures inserted before the gut is divided. A small rubber air balloon is then introduced into the lumen of the intestine. The balloon is inflated, the mattress sutures are introduced, and the bag is emptied and withdrawn before the sutures are tied, and shows the circular suture completed and the mesentery being sewn in such a way that its circulation is not interfered with. He claims the following advantages for this method:

1. The vermicular action of the bowel is arrested over the bag, and the stitches can consequently be placed at regular and proper intervals. The distended bag unrolls and spreads out to a fine edge the everted raw edge of the intestine, and enables the operator to place the stitches with great precision at the desired distance from this edge. (3) If distended intestine is to be sutured to collapsed intestine, or intestine of larger to intestine of smaller lumen, the smaller may easily be expanded to fit the larger piece. This is perhaps the most important function of the cylinder. (4) The cylinder takes the place of at least two assistants. (5) It prevents the escape of intestinal contents and hence dispenses with the injurious clamps or the fingers of assistants. (6) The entire operation, exclusive of suture of the abdominal wall, can be performed on dogs in five or six minutes, and probably in less time. (7) Very little handling of the intestine itself by the operator is necessary. The tube from bag to syringe is used as a handle to rotate and elevate the parts to be united. (8) The operation could readily be performed without a single assistant.

A CONSIDERATION OF THE NERVOUS SYSTEM.

BY F. B. BRUBAKER, M.D., MIFFLINBURG, PA.

PART I.

SHOULD a drop of water that has collected in a rain barrel be examined under a microscope a number of minute somewhat pear-shaped bodies of a green color can be seen actively swimming in it. These bodies are what are termed the zoospores of a small Alga, known as protococcus. The rapidity of the movements of these bodies makes it difficult to observe their structure, but if a trace of iodine be added to the drop of water they will be brought to rest. It will then be seen that they are not all quite alike, some being large and some smaller. The smaller ones consist of a minute mass of a jelly-like substance, granular and colored green for the most part, but clear and colorless at the more pointed end, where it is prolonged into two delicate filiments termed cilia. The larger ones have the same structure, but they possess in addition a membrane through which the cilia protrude. To this jelly-like substance the name of protoplasm has been given, and on account of its universal presence in living organisms it has been described as the physical basis of life. It usually occurs, as in these cases, in the form of minute individualized masses, each such mass being termed a cell. Now the membrane which surrounds the protoplasm of the larger zoospores is the cell wall, and it may be shown by appropriate tests that it consists of a substance known as cellulose; an investing membrane of this kind is present in the great majority of plant cells; its presence is, in fact, the general rule, but it is not absolutely essential, the essential part of a living cell being its protoplasm, the cell wall being a secondary formation, a product of the vital activity of the protoplasm. Now this relation can be made out by observing the subsequent changes which these zoospores undergo, for after moving actively for a time they come to rest, lose their cilia, and acquire a spherical form, and the protoplasm surrounds itself with a firm cellulose membrane, each such non-motile cell constituting a Hæmatococcus plant. After a time, if the external conditions are favorable, the protoplasm divides into a larger and smaller number of segments, the cell wall is ruptured, and the segments of protoplasm are set free as actively moving ciliated cells. It is during their motile period that the larger zoospores clothe themselves with a cell wall.

In observing the life history of Hæmatococcus we observe that it maintains itself, that it reproduces its kind, and that at one period of its life history it is endowed with the power of active motion, phenomena which necessarily imply that the organism is constantly obtaining supplies of matter and energy from without. The organism exhibits these phenomena, or, rather, it performs certain functions of which the phenomena are the outward and visible sign, in virtue of certain fundamental properties which are possessed alike, some in a higher, some in a lower degree, by the protoplasm of all living plant cells. An acquaintance with the fundamental properties of protoplasm may be most readily attained by a series of observations upon some small simple plant, such as a drop of yeast. A drop of yeast placed under the microscope will be found to contain a great number of minute more or less oval cells, while further observations by means of Pasteur's solution added will also show that the cells are actively multiplying by the formation of small outgrowths, which gradually enlarge until they attain the size of the parent cell, when they become detached and constitute new individuals. *The protoplasm of the yeast cell, and this is true of all living organisms, is the seat of active chemical processes which are inseperably associated with the vital activity of the protoplasm. These collectively may be termed the metabolism of the organism.* We may conveniently distinguish as constructively metabolic those processes which tend to form more and more complex compounds in the organisms, and as destructively metabolic those processes which tend to break down the complex compounds with the formation of those of simpler composition. Some of the products of simpler composition of destructive metabolism are such that they cannot enter into the constructive metabolism of the organism and are accordingly thrown off, and so, just as constructive metabolism is connected with the absorption of comparatively simple chemical compounds which constitute the food of the organism, destructive metabolism is connected with the elimination of comparatively simple chemical compounds

which are the excreta of the organism.

The accumulation and dissipation of matter are not, however, the only results of the metabolic activity of the protoplasm of the yeast cell; for if a drop of yeast be dried and the residue burned, a small but definite amount of heat will be evolved, and if a similar drop of yeast be added to a quantity of Pasteur's solution, and after having been left for some time the turbid liquid be evaporated to dryness and the solid residue of yeast cells burned, the amount of heat evolved will be considerable. In virtue of their constructive metabolism the cells contained in the drop of yeast added to the Pasteur's solution have formed a number of new cells, or, in other words, a considerable quantity of protoplasm and of cell wall, and in the process of building up the complex chemical molecules of the substances which constitute protoplasm and of cellulose a considerable amount of energy has been accumulated. The heat given off when the dried yeast is burned is due simply to the conversion of this accumulated energy from the potential to the kinetic condition. The process of destructive metabolism, on the other hand, involving as it does the breaking up of complex molecules into simpler composition, is accompanied by a conversion of potential into kinetic energy. That this is the case can be readily ascertained by comparing the temperature of a large quantity of Pasteur's solution in which the yeast is actively growing with that of the surrounding air and it will be found that the former is several degrees higher than the latter. The results of the destructive metabolism of the yeast cells, therefore, are an accumulation of organic matter and of energy; the results of its metabolism are a diminution of organic matter and a loss of energy. Now, inasmuch as in the experiment before us we have found that a large quantity of yeast in formed from a small one, we also learn that the constructive metabolism of the yeast cell exceeds its destructive metabolism, the weight of the dried yeast and the amount of heat given off when it is burned being the measure of the excess. Protoplasm, therefore, as we have found, is absorptive—it is metabolic, it is excretory, it is reproductive. This as it relates to a unicellular organism—viz., the yeast plant. But this is not all; for as we approach from the simpler to the more complex, from the lower to the higher organism, we find that by specialization of cellular structure, protoplasm becomes endowed with other properties, and these, by an elaborate series of experiments the world over by able investigators, have been proven to be contractility, irritability, etc., through and by which specialization of cell is found which has given rise to differentiation of function and to physiologic division of labor. Of the various forms which cells assume, those which resemble each other are connected together, so that several tissue systems can be distinguished in the body of the plant. The plant is then said to exhibit differentiation of tissue or histologic differentiation, and this is the expression of the adaptation in different directions which the originally similar cells have undergone for the due performance of the various functions of the plant. Now what has been said of protoplasm and cell life as it relates to the vegetable kingdom is no less true as it relates to animal life, *for no material difference has been found to exist between protoplasm as it is found in each kingdom.* Starting with the Amœba, a unicellular organism of the animal scale, we find its life history is largely mirrored in that of the yeast plant. Indeed, the first stage of any organism, from the simplest form of plant to man, consists of a single cell, in animals called the ovum or egg, which differs in no material respect and in no points of structure from an ordinary cell. The group of unicellular organisms which most resembles animals are called Protozoa, and are divided from the animal forms by the manner of development of the ovum of the latter, which divides into cells that subsequently become differentiated into tissue as we arrive at the production of special structures and organs such as are met with in the higher animals and which are necessary for the more efficient discharge of the various functions carried on during their lives. The division of the original mass of indifferent cells into two layers of special cells is the first step toward tissue differentiation. The history, then, of the development of any mammay from a single cell or egg to the complex individual which is adult is analogous with the more protracted history of the evolution of the animal kingdom from the Protista upward. Having shown, then, that the essential element of life—viz., Protoplasm—is the same in all facts, whether it relates to vegetable or whether it concerns animal structure, and also that the development of the one from the lower to the higher is like to the other in all material matters, let us see upon what external conditions the life of protoplasm itself depends; first, as to its nourishment. The circulation of water through vegetable structure has been a matter of much research and experiment; there is no doubt that the distribution of water takes place in the same manner and by virtue of the same forces as its absorption—that is, it passes by osmosis from one cell to another, just as it passed originally from without into the superficial cells of the plant. Further, inasmuch as the movement is the expression of a tendency toward fluid equilibrium in the plant—that is, that the proportions of water in each cell should be the same throughout—the direction of the movement being not necessarily constant, but proceeding from those parts which are relatively rich in water towards those which are relatively poor, naturally if water is given off at any point of the free surface of a plant a current will be set up in the tissues towards that point. These statements apply not only to water, but also to the gases and the substances which the water holds in solution; these travel, as we have seen, by osmosis from cell to cell, the direction of their movement being determined simply by the relative quantities of them in different parts of the plant. These changes are more especially active for different substances in different parts of the plant, and consequently the rapidity of transmission of certain substances in any particular direction will be greater than that of others; thus the inorganic substances absorbed by the roots pass into the cells of the leaves, where they are concerned in the processes of constructive metabolism which are in operation in those organs, and the products of these processes pass from the leaves either to those parts of the plant in which growth is actively proceeding and plastic material is required, or to those parts, such as seeds, tubers, etc., in which stores of organic substances are being laid up. This is the only way in which the distribution of water is effected in cellular plants which do not pos-

sess fibro-vascular bundles. It is only one of the ways in vascular plants. It is a matter of common observation that when the stems of vascular plants are cut in the spring a flow of watery fluid takes place from the cut surfaces of that portion of the stem which is connected with the root. This fact was investigated with great thoroughness by Hales, and he concluded that there is a considerable energy in the root to push up sap in the bleeding season. The correctness of Hales' conclusions were confirmed by the experiments of Dutrochet, in the course of which he ascertained that a flow of sap only takes place from the cut surface of a stem when it is organically connected with the roots, and from that of a root when it is in connection with the soil by means of root hairs. The root pressure, as this force is termed, is therefore the expression of the absorbant activity of the root hairs. Hofmeister proved that bleeding also takes place in herbaceous plants, and further that, although common to spring, it can be produced artificially at any season. But the root pressure does not only manifest itself by causing a flow of sap from the cut surfaces of plants; it also causes in many plants the exudation of drops at the free surface. It can be readily observed that the liquid that is poured out by a bleeding stem escapes from the orifices of the vessels of the wood, and it is also in these channels that it is conveyed to the leaves on which drops are formed. Since the amount of liquid in the vessels necessarily depends upon the absorbent activity of the roots, the amount of liquid which escapes from the cut surface of a root stock in a given time may be taken as a measure of the osmotic forces which are in operation in the root; a periodicity between different hours during the day has been found to hold good for this principle.

The temperature of the soil has an important influence upon the absorbent activity of the roots, and it seems reasonable to suppose that the daily variations of temperature in the soil induce a similar periodicity in the absorbent activity of the roots. But this in itself has been found to be of lesser importance than that which appertains to the inherent absorptive properties of the roots themselves, this tendency being transmitted from generation to generation. It is the wood by which water which is required to make up for the loss by transpiration is conveyed from the roots to the leaves. In annual plants the whole of the wood conducts water, but in perennial plants it is only the younger wood, since we know that the water travels upward through the young wood, and since it is stated that at the time when the current is most active the cavities of the cells and vessels contain no water, we must conclude that it travels in the substance of the cell wall itself, and this has actually been found to be so; the water absorbed by the root hairs then filters under pressure from the innermost parenchymatous cells of the root into the walls of the adjacent wood cells. At the same time water is being drawn by the transpiring leaves from the wood of the stem and the demand is met by the conduction of water upwards from the root through the lignified cell walls. It may happen that the quantity of water forced in a given time into the wood of the root is not so great as that which is transpired by the leaves; under these circumstances the plant becomes flaccid and begins to wither. Or too much water may be forced into the root and be more than is transpired by the leaves; in this event it is stored in the cavaties of the cells and vessels of the wood of the roots. It is by means of the fibro-vascular bundles that water is distributed to all parts of the plant.

Having shown, then, that in their fundamental structure and in their nourishment by means of a circulation the protoplasm of vegetable life does not differ in any material thing from the protoplasm of animal life, we will pass from a consideration of these fundamental principles to an examination of the conditions upon which the life, and consequently the metabolism, of protoplasm depends, we now having seen that one of these conditions lies in the regular and constant supply of water laden with nutritive principles (the food); in the case of vegetable protoplasm it being inorganic material, while in that of animal origin, organic. Let us consider, next, light. If, for instance, we lead the terminal bud of a vigorous leafy shoot into the dark cavity of a box with opaque walls a system of shoots, leaves, flowers, roots, tendrils, and even ripe fruit with seeds capable of germinating develop on it. The whole, however, presents an exceedingly strange appearance: the shoot axes and leaf stalks are quite white, the laminæ of the leaves are small and colored yellow instead of green, and generally are not extended flat, and the entire substance of these so-called etiolated parts is richer in water, more delicate and more sensitive to injurious influences than normal ones developed in the light. If, now, a bud of the shoot system grown in the dark is conducted through another narrow opening of the box out into the light again, normal, green, flat, extended and large leaves are produced once more, and the shoot, growing forward in the light, again obtains its normal peculiarites in every respect. This experiment shows that the growth of all the organs can take place even in a deep darkness, though with some abnormalities. The most important point, however, to this argument, and one to be constantly kept in mind, is *that this growth cannot take place at all but for the fact that outside the box there are normal green leaves exposed to the sunlight.* If these latter are shut off from the light, or even much shaded, by which means their assimilation is destroyed or impaired, the growth of the parts in the box is an impossibility. This experiment shows conclusively that the nutrition of the plant is a function of the chlorophyll in the green leaves, and that this chlorophyll is only formed under the influence of light, and is able by means of the latter to decompose the carbon dioxide in the air and thereby to produce organic vegetable substance, which becomes transferred from the assimilating leaves into the buds, there to produce new organs, even if in a dark box. It has been found that light in some manner is chiefly concerned with nutrition, and what has been said of the plant is in a certain sense true of the animal; born, bred, and reared in an atmosphere where only darkness is found the animal structure including man is markedly imperfect, and although life may continue under these unnatural and unfavorable circumstances, it is indeed doubtful if it continue beyond a certan limited period. This being likewise observed if we remember how in countries like the extreme north, where a continued darkness obtains during months, the people have been found small of stature and very imperfect when compared with the inhabitants of countries where the amount of sunshine is greater; this of course being only one of the many reasons why such is the case, but which serves very well for our present consideration. Passing from a study of the amount of light necessary, and from its proven

function of nutrition on both vegetable and animal structure, let us next consider heat. The life of the plant is a coherent chain of the most various motions of the smallest particles, the atoms and molecules of its substance, from which arise in the plant mass motions of the entire organs, which, however, are slow and mostly difficult to perceive. The most general and important source of vital force through which the life motions in the bodies of plants are called forth is, however, heat. As is well known, heat is to be considered as a motion of the smallest particles of matter which is transmitted from one substance to another; the intensity of this motion or the force with which the smallest particles of matter vibrate is called the temperature, which in its turn is measured by means of the thermometer. Experience shows now that the vital motions in the interior of the plant do not occur until the temperature of the environment, which by degrees becomes communicated to the plant, reaches a certain height; that is, the heat motion imparted to the plant must effect a certain intensity of the vibrations of its smallest particles in order that these further motions of the atoms and molecules may take place by which the various chemical processes of nutrition and all the various molecular motions of which the life of the plant consists are called forth. Numerous researches have shown that temperatures between the freezing point of water on the one hand and about 50° C. on the other indicate those intensities of heat motion at which plant life is possible, the minimum and the maximum temperatures at which plant life is possible, varying for different plants and largely depending upon the amount of water contained in the parts of the plant. Now, within the specified range of temperatures there lies for each individual vegetative function a certain degree of temperature at which it develops its greatest activity, at every degree of temperature above or below which the vegetative function in question will be less active and absolutely cease and the plant die if the freezing point of water is reached or a temperature of about 100° F. is experienced.

SIDE-LIGHTS ON THE PRACTICE OF MEDICINE.

BY W. T. MARRS, M.D., JEWETT, ILL.

RECENTLY, while one day in the office of a prominent lawyer in an Illinois city, my legal friend said: "I have in the closet something which I have never examined, and now while you are here is a good time to take an inventory of it." He produced an old rusty satchel, and visions of superannuated corn juice began to float before me. However, I was soon disillusioned. We found the satchel to contain a bottle of copaiba with directions on it, a bottle of dope for injection, a clap syringe, absorbent cotton, and a few other etceteras. A woman had brought the outfit to the lawyer to be used as evidence in a divorce proceedings in case the husband should seem reluctant to meet his wife's demands. The moral to this incident is obvious. Gonorrhœa in married men should be handled in a way that will keep families intact, and also avoid the physician and patrons the embarrassment of court publicity. During the interim the medical man has a good opportunity to drive in a few wholesome lessons on the rewards of virtue and the far-reaching ravages of venereal disease, all of which may be instrumental in causing the sufferer to "sin no more."

By the way, if gonorrhœa was more generally looked upon as being the serious disease that it really is, men who have a spark of decency in their make-up would take greater precaution against spreading this awful infection. A prominent gynecologist told me that if it were not for the results of gonorrhœal infection, his specialty would be of no importance. Salpingitis, ovaritis, para- and peri-metritis and the majority of all other pelvic inflammations and exudations are secondary to gonorrhœal infection. Its remote effects upon the female pelvic organs are more virulent and less amenable to treatment than syphilis.

The successful diagnostician should also be a skilled metaphysician in order that he may grasp at all times the true cause of suffering, which may be ofttimes mental as much as physical. Environment should not be overlooked. Circumstances often put people out of their natural sphere and they have a pride and personality that cannot be adjusted to unfavorable conditions. Defeated hopes and aims cause, perhaps, as much suffering as actual disease. Recently I attended upon a woman in her fourth confinement, the former three having followed one another in rapid succession. As we completed the toilet the woman was overcome with pent-up emotions and large globules of tears stole down her cheeks. The attendants thought her to be suffering from hemorrhage, exhaustion, or other physical cause. Through it all I read this: She was a woman of fine sensibilities, young and ambitious, wedded to a man who is good in his way, but possessed of a nature devoid of sentiment and the finer attributes of character. The poor woman realized full well that this new baby meant an increase of her care and toils, divided the meagre chances of an education with the others and still further lessened the mother's hopes of future comforts and enjoyments. Large families are all right in theory. They are all right for people who have the perquisites, monetary, mental and physical, to rear them commendably, but in cases like the one just cited—who will have the temerity to stand up and say that additional members to the family are an unmixed blessing? "The proof of the pudding," etc., here applies. The fact that a great many women who are favorably environed are loath to become mothers has engendered the popular belief that all women everywhere should get busy and prolific. According to some present-day writers and speakers, it is the sole and bounden duty of womankind to turn themselves into fecundating machines to fight the will-o'-the-wisp popularly termed "race suicide." If we look upon the matter from a conservative angle there would seem to be no immediate danger of our population falling into desuetude. If the agitators of large families would direct their calamity-howling toward the affluent centres, how much better 'twould be. The masses of humanity are laborers living upon small salaries. The income of most of the race hardly equal their needs. At the same time this same class of people are bringing forth an ample quota of children. Social evils and vices in general are not lessened by large families, only in isolated cases. In our large cities the poverty incident to caring and providing for a large family often drives ambition from the parents' lives and lets depravity creep in. These lines are not written in an iconoclastic spirit, but merely with a view to presenting a few ideas on the other side of a subject that seems to go unchallenged. *Better,* and not *bigger,* families should for a while occupy the spot-light of our attention.

A few days ago I had the pleasure of being shown

through a large state institution for the incurable insane where about two thousand patients are cared for. The superintendent has introduced modern methods for this class of afflicted humanity. The patients are allowed the utmost freedom of the wards and grounds. No enclosures or any suggestion of restraint is to be found anywhere. The patients are treated so far as possible as though they were not bereft of reason. The vicious and incorrigable are, of course, properly classified. The strait-jacket and its congeners are placed in the museum to let visitors view them as relics. Their use has been supplanted by more enlightened methods. The patients are restrained no more than is in keeping with safety to themselves and their fellows. By reason of this innovation the institution has gained widespread attention. It is certainly the correct idea. The mentally afflicted nearly all have at times lucid moments when they realize in some measure their true condition. Punishment and harsh treatment is never availing. By the way, a number of our state prisons should take a lesson from this. Many of the criminal class can help their condition no better than can the insane. Convicts should be taught that they are placed in confinement not as a punishment for crimes committed, but because their freedom is a menace to good and law-abiding people. When barbarous practices in prisons have given way to civilized and humane treatment, these institutions will be conducive of better results.

THE X-RAY AT THE PRESENT TIME.

Various problems are arising from the use of the X-ray, especially as to its value in the law. Thus the Supreme Court of Illinois recently decided that it was necessary to consider the insistence that the trial court erred in permitting the introduction in evidence of a skiagraph, or X-ray photograph, of a portion of the chest and body of the party suing. The skiagraph was made by an expert, regularly engaged in taking such photographs for physicians; he took the negative from which the photograph was developed, and he developed the photograph; and it was an accurate and correct representation. The skiagraph showed that the party's heart had been displaced, that the walls of that organ had become thick, and that an abnormally heavy tissue had formed on the walls of the heart; the testimony of the X-ray expert showed the picture correctly represented the condition of the heart of the party. It was decided photographs taken by the X-ray process are admissible in evidence after proper preliminary proof of their correctness and accuracy has been produced. The Supreme Court decided the testimony of the X-ray expert who made the skiagraph was sufficient to justify the court in ruling that the picture should be admitted in proof. Subsequently, when the company was introducing testimony in chief, another X-ray expert was produced in its behalf. This witness gave testimony tending to show that the skiagraph had not been properly taken, and expressed the opinion that the picture was of little or no value as a representation of the heart and other portions of the body of the party suing. But the court was not asked to exclude the picture because of this adverse criticism; nor does the Supreme Court think the motion to exclude should have been granted, had it been interposed. It further says that it was not error to allow the jury to take the skiagraph with them when they retired to consider their verdict.

Definite indications for employing the Roentgen rays have been determined in the treatment of superficial lesions; and that a dosage that is sufficiently accurate for comparison and for efficient employment is known. The most valuable treatment by this method is the post-operative, that is, in combination with early operation. Leonard includes among the superficial lesions those granular organs that lie beneath the surface and speaks of the remarkable results that have been produced in tubercular and simple adenitis and the sinuses that often follow operation. Leonard reported four cases of goiter in which the treatment had been applied for its alterative action, and because of the analogous character of their structures to fibrous malignant disease, in which beneficial results had often been seen. One patient remained cured for three years. It was a case of chronic, simple goiter of twenty years' standing. A second had remained cured eighteen months since treatment was stopped, with entire absence of nervous symptoms, while a third patient, a case of exopthalmis goiter, was much improved, but discontinued treatment. A fourth patient is improving under treatment. The depillatory action of the ray has been found of great value in sycosis, favus, ringworm, and hypertrichosis. The stimulant action due to modification in dosage was illustrated by the beneficial action in alopecia areata. Lupus illustrated the several lesions that yield rapidly to this treatment, with a remarkable restoration of the normal, and without breaking down the tissues. He also reported a number of severe and chronic cases of eczemas and psoriasis, varying from seven to twenty years in duration, that yielded to this method of treatment. Another group of difficult cases amenable to this treatment are the acnes. Here rapid results are obtained without scarring or disfigurement. Keloids, especially those that have taken on retrograde degeneration of a malignant type, are especially amenable.

Some years ago the American Surgical Association unanimously adopted the following conclusions: (1) The routine employment of the X-ray in cases of fracture is not at present of sufficient definite advantage to justify the teaching that it should be used in every case. If the surgeon is in doubt as to his diagnosis, he should make use of this as of every other available means to add to his knowledge of the case, but even then he should not forget the grave possibilities of misinterpretation. There is evidence that in competent hands plates may be made that will fail to reveal the presence of existing fractures, or will appear to show a fracture that does not exist. (2) In the regions of the base of the skull, the spine, the pelvis, and the hips, the X-ray results have not as yet been thoroughly satisfactory, although good skiagraphs have been made of lesions in the last three localities. On account of the rarity of such skiagraphs of these parts, special caution should be observed, when they are affected, in basing upon X-ray testimony any important diagnosis or line of treatment. (3) As to questions of deformity, skiagraphs alone, without expert surgical interpretation, are generally useless and frequently misleading. The appearance of deformity may be produced in any normal bone, and existing deformity may be grossly exaggerated. (4) It is not possible to distinguish after recent fractures between cases in which perfectly satisfactory callus has formed and cases which will go on to non-union. Neither can fibrous union be distinguished from union by callus in which lime salts have not yet been deposited. There is abundant evidence to show that the use of the X-ray in these cases should be regarded as merely the adjunct to other surgical methods,

and that its testimony is especially fallible. (5) The evidence as to X-ray burns seems to show that in the majority of cases they are easily and certainly preventable. The essential cause is still a matter of dispute. It seems not unlikely when the strange susceptibilities due to idiosyncrasy are remembered that in a small number of cases it may make a given individual especially liable to this form of injury. (6) In the recognition of foreign bodies the skiagraph is of the very greatest value; in their localization it has occasionally failed. The mistakes recorded in the former case should easily have been avoided, in the latter they are becoming less and less frequent, and by the employment of accurate mathematical methods can probably in time be eliminated. In the meanwhile, however, the surgeon who bases an important operation on the localization of a foreign body buried in the tissues should remember the possibility of error that still exists. (7) It has not seemed worth while to attempt a review of the situation from the strictly legal standpoint. It would vary in different States and with different judges to interpret the law. The evidence shows, however, that in many places and under many differing circumstances the skiagraph will undoubtedly be a factor in medico-legal cases. (8) The technicalities of its production, the manipulation of the apparatus, etc., are already in the hands of specialists, and with that subject also it has not seemed worth while to deal. But it is earnestly recommended that the surgeon should so familiarize himself with the appearance of skiagraphs, with their distortions, with the relative value of their shadows and outlines, as to be himself the judge of their teachings, and not depend upon the interpretation of others who may lack the wide experience with surgical injury and disease necessary for the correct reading of these pictures.

Thomson was the first to explain the methods and apparatus necessary for producing stereoscopic photographs, and many workers are now paying particular attention to these, for any one who has had any experience of the value of stereoscopic vision in X-ray work can fully appreciate its importance. From stereoscopic photographs it was but natural that we should desire to see things stereoscopically on the fluorescent screen. After much labor, a most ingenious arrangement has been produced by Davidson. This instrument is bound to be of great value in the examination of the extremities, head, and also in many other parts of the body. No doubt, as yet, with all the improvements upon fluorescent screens, they are not as satisfactory as photography which allows examination at leisure, and often with much greater detail. In construction, for certain parts of the body, it is cumbersome, but no doubt it will in due time be modified to overcome all difficulties.

Heineke expatiates on the remarkable harmony between clinical experience and the results of experimental research in respect to the action of the Roentgen rays on the cells of the blood-forming organs. After exposure of guinea-pigs for several hours to the rays, the white cells of the bone marrow, with but few exceptions, are destroyed. This destruction of the white marrow cells commences at nearly the third hour, reaches its height at about the eleventh hour, and the process is terminated by the end of five or six days. The lymphocytes succumb first and the ungranulated myelocytes, then the eosinophiles and the mast and giant cells, while the neutrophile polymorphous polynuclear cells remain intact longest. The injured bone marrow is capable of regeneration, which commences at about the second week and is complete by the third or fourth. During regeneration the ungranulated and the giant cells appear first, while the eosinophiles and the mast cells are the slowest to appear. These findings were obtained in 150 guinea-pigs after a single exposure of several hours' duration. They harmonize perfectly with what has been observed in the clinic, but the lymphoid tissue in man does not react so promptly and decidedly as in animals. The glandular tumors of the pseudo-leukemia generally respond to Roentgen exposures with prompt retrogression, though some cases prove refractory. The soft, rapidly-growing glandular tumors, abounding in lymphocytes, respond best to exposures, as he illustrates by the report of a case personally observed. The possible rapid regeneration of the tumors when the exposures are suspended is one of the facts which testify that the rays do not reach the causal agent. Experiences with sarcomata indicate that those whose cells approximate most closely the lymphoid tissue are most susceptible to the action of the rays. In man the rays seemed to exert a favorable action on the red cells and the hemoglobin, but no confirmatory findings of this have yet been obtained in animals.

Stenbeck describes a case of rodent ulcer in the tip of the nose of a woman, aged sixty-seven, treated by the Roentgen rays. The rays were applied for ten minutes daily at a distance of 10 cm. Reaction occurred after four sittings, and on the tenth pus appeared. After thirty-five sittings the ulcer was more healthy, and the epidermis began to grow in from the edges. After a short interval the sittings were increased to fifteen minutes, and a second re-action took place, followed by improvement. The epidermis grew over the ulcer, the edge flattened down, and in a month a smooth cicatrix was left, differing little from the facial epidermis, and surrounded by a slightly raised border. Great attention has been paid to the discovery of other waves in ether which resemble X-rays. Becqueral, M., and Madame Curie, Crookes, have written some papers of great interest. Great excitement has been caused by the discovery of radio activity in uranian salts, polonium, radium, actinium, and others. These excite fluorescent screens, discharge electrified bodies, and some, at least, are capable of chemical action, converting oxygen into ozone, and are composite. Some of the substances lose their properties when heated to a certain degree, and regain them when cold. In this connection a great many experiments have been tried to prove whether or not the X-rays can destroy micro-organic life, as it was naturally assumed that if they did they could be employed successfully therapeutically. The results have not, so far, been encouraging. Drs. R. Norris Wolfenden and Forbes Ross in their last experiments have come to the conclusion that the X-rays actually stimulate the growth of organisms. This is their opinion after carefully excluding, as far as possible, all possible error of other forces at work at the time of their experiments. The question as to whether their action is curative in skin affections and others and may be due to the stimulation of the vital forces enabling them to overcome the action of micro-organism, has been advanced pretty freely during the past year. It naturally follows, if the X-rays can do this, why should not some of the above mentioned radio-active substances be employed therapeutically? So far no one has discovered anything which would show they can take the place of X-rays, in diagnosis.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, NOVEMBER, 1906

PURE FOOD VERSUS PRETTY FOOD.

WE join in the general felicitation that the Pure Food Bill has been made law. It was based upon premises so elementary, as regards common honesty, that instead of the bitter and prolonged fight which attended its passage, there is cause for wonder why its progress toward the President's signature was in any way delayed. It is, however, but fair, and not a little diverting, to note some objections made by manufacturers and dealers before the Commission appointed to carry this law into effect.

A representative of the Proprietary Association of America proposed that no type smaller than that known as "long primer caps" should be used upon the label of so-called "patent" medicines to announce the presence of alcohol, as required by the new law. When asked if in his opinion any one would be more excited on seeing the word "alcohol" in large type than in small type, he replied with a decided affirmative: "Many people would be terrified at the mere word alcohol on the face of a label. They wouldn't have anything to do with the medicine. But if we are allowed to print the fact of the presence of alcohol in the same sized type as that of the directions for using, I am sure the people would not mind that so much." Such fantastic observations as these nevertheless suggest the odd and sometimes amusing psychology which dominates probably the most of us. Many like peculiarities of consumers were set forth during the inquiry of this government Commission; and it would really seem as if the manufacturer, with all his dyes and preservatives, takes no more pains to deceive the consumer than the latter takes to deceive himself. It was claimed, and no doubt with truth, that catsup made naturally cannot be sold for the reason that it doesn't "look nice"; the brilliant red of this product as it is bottled is not natural, but it is bought in preference to the undyed catsup. It is the same with spinach or peas; they could not naturally be of such a gorgeous green as they are served up to us even in the better sort of restaurants. Yet most of us decidedly prefer the dyed product. The rich yellow butter served all the year around in many places is artificially colored, as are also many other foods and drinks. Nevertheless, observes the *Sun*, "while talking gravely of the evils of impure food, we insist upon gratifying our æsthetic needs, so to speak, before considering anything else—even our health." This obtains especially with the most charming of sexes, who are the chief consumers of ice creams, candies and other ornamental foods and delicasies. We have ourselves been a bitter opponent of any adulterations of food that are injurious to health; wherefore we may consistently quote the observation of Sir William Perkin with regard to dyed foods: "The amount of dye required is so minute that if the same quantity of strychnine were used it would be equally harmless." This is not an argument for preparing food with any amount of strychnine whatever; but it does provide some degree of scientific sanction for such wholesome coloring of food as may be desired by the consumer.

UNAUTHORIZED OPERATIONS.

ONE of the many problems in surgery is the question of liability for the performance of unauthorized operations. As a rule, of course, the consent of the patient or those in legal control is asked by the operating surgeon, but there are cases occurring every day in which it is impossible to get this consent owing to the delay necessary or where the patient is in a condition not fit for deciding for himself. The general law on the subject, says, with a great deal of common sense: "The patient must be the final arbiter as to whether he will take his chances with the operation or take his chances of living without it. Such is the natural right of the individual which the law recognizes as a legal one. Consent, therefore, of the individual must be either expressly or impliedly given before a surgeon may have the right to operate."

This ruling of the courts is in line with a broad general principle that contracts must be entered into by mutually interested people. It holds in all other trades, occupations and professions. On the other hand, it is acknowledged that methods of treatment are committed almost exclusively to the judgment of the surgeon, although it is still regarded by the courts that this does not include free license respecting surgical operations.

One of the most recent decisions was handed down

by the Supreme Court of Minnesota, in a curious case reported in the Journal of the American Medical Association. The defendant was a surgeon of standing and character who was consulted by the plaintiff, who complained of trouble in her right ear. The examination of this ear showed a large perforation in the drum and a polyp in the middle ear. He advised an operation, which was agreed upon. After being anesthetized, it was found that her left ear was in a more serious state than the right. Owing to foreign substances in this ear, an incomplete examniation had been previously made; so he operated on the left ear instead of the right, with the knowledge and consent of the family physician. The operation was skilfully and successfully performed, but the patient was dissatisfied, brought suit, and received over fourteen thousand dollars damages. The Supreme Court allowed a new trial, but held that the defendant had no right to perform the operation without the consent of his patient. The court acknowledged that reasonable latitude must be allowed, especially in cases of emergencies, where a patient was unconscious or where his injuries prevented his calm judgment. Again, if in the course of an operation the physician should find conditions not anticipated before the operation was commenced, and which if not removed would endanger life and health, he would be justified in extending the operation to remove and overcome them, even though no express consent was obtained. Yet the judge drew a fine distinction between this phase of the question and doing a totally distinct operation also affecting health and life. The extenuating circumstances are the good faith of the defendant and the beneficial character of the operation. Under such ruling it would be well for the prudent surgeon to get a general consent from his patient to do whatever he deemed necessary, so as not to be hampered by any restrictions after anasthesia is accomplished. The law draws here one of its famous hair-splitting deductions worthy of Portia herself, and it is well to comply with its instructions.

AUTOMOBILE HOMICIDES.

WE never fail to be horrified when we recollect that famous (or rather infamous) incident recorded in history precedent to—and expediting—the French Revolution, when the carriage of a gentleman, in turning the corner of a Parisian street, crushed out a human life. Yet how, pray, does it differ from the following, related in a responsible lay paper, and occurring in the cultivated metropolis of the Western World:

"An automobile going at high speed knocked down a pedestrian, hurting him fatally, and continued on its way without stopping." Its occupants made no effort to ascertain the extent of the injury the machine had done, "and their conduct justifies the suspicion that realizing they were violating the law, they took refuge from the consequences of their acts in flight."

Such brutalities as these are becoming so common that one may read of them in any newspaper of whatever date he may happen upon. Under these circumstances it were useless to talk of civilization having advanced beyond the time of Nero; for certainly there has never in history been displayed a more cruel disregard of human life.

When the automobile first came into vogue it was believed that after owners and chauffeurs would be accustomed to their mechines, they would adjust themselves to traffic conditions and see to it that their cars were properly controlled. To a large degree moderation in speed has obtained, together with increase in skill. But, as we have noted, there are still many riders either criminally brutal or unskilled; and upon such the very severest penalties which the law can inflict should be visited. Most of these machines are the property of the very wealthy. And it is quite useless and very baneful indeed (since it makes the law ridiculous) to impose a fine of a few dollars upon such an owner. He should receive a jail sentence, at least the thirty or sixty days meeted out to a homeless "drunk" who hurts nobody but himself.

THE PARTIALLY TRAINED NURSE.

POPE put a brake on human progress when he wrote "A little knowledge is a dangerous thing." This statement is a half-truth, and like all half-truths, it is dangerous and misleading. Thus, in nursing it is a question whether to feel that one knows too little is not better than knowing it all. The nurse, except in rare occasions, is not supposed to take the initiative. Like the famous Six Hundred, "Hers is not to know the reason why." Yet the average nurse, made two-thirds doctor, is really in an anomalous position. She knows much of medicine, and yet she is simply to follow out the instructions of another. She has had a long, arduous training, enough to wreck health and spirits, with many lectures, and she feels, perhaps properly, that she knows almost as much as the doctor.

The question arises naturally, Are not our nurses too well trained? Dr. Benedict, in a recent article in this journal, advocates in cautious language the use of the partially trained nurse. The idea is growing; schools established to teach the fundamentals of nursing, with a fair amount of practical experience, are growing like mushrooms.

There are two phases to the question. First, the physician's standpoint: Can a partially trained nurse

do her work properly? In this connection let us quote from a recent article in the *New York Medical Journal*, by Dr. Thompson. He says:

"The modern training-school system for nurses is absorbing for itself, through pedagogic ambition, a power and importance never originally contemplated by the medical profession.

"The overtrained nurse is expected to learn almost as much physiology, anatomy, and bacteriology as is required in the first year of a medical student's curriculum, and to spend at least one third more time in hospital service than does the interne. Now what has this system to do with the patient? Let me take a specific illustration from fact. It was recently discovered in one of our most widely known hospitals that an interne had been graduated without ever having given personally a hypodermic injection. Shortly thereafter he was sent by a practitioner to give such an injection of morphine to a patient. The patient complained that he did not want to see that young doctor again, for "he was so clumsy and hurt him so much." In his defence the young man explained that the "nurses always did all that sort of thing, and he supposed it would make trouble if he interfered." Upon further inquiry in the hospital, it was found that the internes almost never applied dry cups, passed rectal or stomach tubes, or did many like services for their patients, because the nurses had appropriated all such duties themselves. That the nurses should be taught to perform them is both reasonable and proper, but that they should do so to the entire exclusion of the internes is most undesirable.

"It was formerly a trite saying that 'a good doctor should begin by being a good nurse.' Of this one now hears but little, and the patient, if not the physician, is the loser. The nurses themselves are so busy in routine work and in pursuit of the academic exercises of their elaborate curriculum, and are drilled into such mechanical methods, that the unfortunate patient must take the consequences.

"What a picture of neatness and discomfort the usual large hospital ward presents to-day! The window shades are all at the same level, no matter what patient with a raging headache and photophobia is obliged to look into the sunlight; the bed clothing, lest it appear wrinkled, is pinned as taut as a board over the cramped and hyperextended feet; the bedside tables are all placed exactly on the line, no matter whether the patient is right or left handed, or happens to be paralyzed on the wrong side—for the table; there is a notable absence of comfortable headrests, footrests and easy chairs; every one in the ward is awakened at the same early hour (in one notable case at 4:30 a. m.!) so that the night nurse can turn the service over in perfect order to her successors of the day, and the long suffering patient with cardiac dyspnœa and orthopnœa, or the sensitive neurasthenic trying to catch a morning nap, must bestir himself betimes and have his face washed and hair combed. The hospital engineer has orders to keep the ward day and night at the same inflexible temperature of 70 degrees F., and the pneumonia patient, burning with fever, in sore need of fresh, pure air, lies in the next bed to the uræmic with a subnormal temperature who needs a good sweat in a hot pack."

Again, there is a lack of loyalty often displayed by the overtrained nurse. There is a great temptation to display knowledge and judgment, generally to the disadvantage of the absent physician. Thus one nurse, introduced into a family as "his favorite nurse" by a physician of international reputation, at once began insiduously to criticize her chief's methods, his medicines, his "old-fashionedness," his results, and did him incalculable harm. Of course, the physician heard nothing of this, but unfortunately there is in the ordinary nurse's mind a latent feeling of criticism of the doctor's methods, no matter whom he may be.

On the side of the patient it is simply a question of the ability of the nurse to do her work properly. If she can do this, the cheaper nurse is better, for she is more amenable to discipline, gets along better with servants, and tends more strictly to business. The financial side is important, too, for in many families a high-priced nurse is a heavy drain on resources.

In this connection it is well to state that this class of nurse is not intended to supersede the higher priced attendant where she is required. In many a sick case the highest degree of training is required, but the average illness requires really only an intelligent attendant who knows the fundamentals of nursing, and follows faithfully the instructions of the doctor.

THE NEGRO PROBLEM FROM THE PHYSICIAN'S STANDPOINT.

ONE of the burning questions of the day that sticks its ugly head up on all occasions is the so-called "negro problem." Apparently at present it is beyond solution. Writers have attacked it from all sides. Even a casual English visitor, the novelist, H. G. Wells, devotes considerable time to it on his recent visit to America. He sides with the negro and believes his case has been overcriticized and undervalued. Again at the other extreme, Dr. Bean in the *Century Magazine*, in recent issues has approached the subject purely from a medical standpoint. After an exhaustive study of the subject lasting over years, including a thorough study of the negro brain, Dr. Bean believes there are widely different characteristics in the two brains

which will prevent the negro from advancement, except in the direction of his natural endowments.

The Caucasian, and by this term is meant the Anglo-Saxon, is domineering and dominant, possessing will power, self-control and all the higher attributes of the subjective self, with great reasoning power and highly developed ethical and esthetic faculties. The negro, on the other hand, is objective; he is affectionate, emotional, sensual and passionate. He loves show, ostentation and approbation; he has an undeveloped artistic power and taste, loving melody and rude poetry. But he is deficient in judgment, imitative rather than original, and very unstable in character and morals. The white brain has a large frontal region; the other is larger behind. Fundamentally they are extremes in evolution.

The famous men of the negro race are not pure negroes ethnically; such men as Dumas, Booker Washington and Tanner are altered by heredity and environment. Again a serious mistake is made in classifying all negroes as the same. There are many African races represented, which at home are wholly dissimilar. Thus the lowest negroes may spring from the Hottentots or Bushmen, while a higher order comes from the Guinea coast negro, the classical type, having a velvety skin, low stature, well knit and muscular. Then come the high class Guinea coast negro or Sudanese, who are handsome, tall and well proportioned. They are natural mechanics and form the best group the South contains.

Again come the Kaffirs and the mulattos; they show the Semitic type or Hamitic type grafted on the negro. They are bright but dishonest, making excellent house servants if under proper discipline. The mulatto contains more or less white blood and often combines the bad attributes of the two races, showing the sensuality of the aboriginal African with the energy of the Caucasian and lacking the self-control of the Anglo-Saxon and the amiability of the pure negro.

This is an old problem and not entirely confined to America, for it exists in Egypt, South Africa, Haiti and South America. Before the Civil War in another phase it was far more acute. The moderate people of those days endeavored to drive back the negro to Africa; we have to-day Liberia, founded by the American Colonization Society. But it was a failure, for the negro will not go back to his ancient wilds. Hence the problem must be worked out there. It needs patience, Christian forbearance and time, but it will be worked out properly, but only by remembering what the negro is and how diverse the race is in types and attributes. Dr. Bean's papers are a timely, scholarly contribution to a puzzling subject.

THE NEW HARVARD MEDICAL SCHOOL.

AN event of very unusual interest to our profession was the recent dedication of the new Harvard Medical School; and equally great will certainly be the benefit which the general public will derive from the activities that these ceremonies have begun. Men eminent, not only in medicine, but also in many other callings (there were representatives of more than a dozen foreign universities and of fifty American institutions), assembled to take part and to admire the group of white marble buildings, of which the generosity of rich men made the construction possible.

Architecturally these buildings are the best collection in our country; medically they are the best equipped in the world. They were planned by Professors Warren and Bowditch, who, together with President Eliot, secured in all $5,000,000 to this end. From the famous Boston Fenway to the open end of the quadrangle which these buildings inclose, the city will construct a boulevard one hundred feet wide, in order that the imposing view of the group may not be cut off. All are connected by means of terraces with one another, with flights of steps opposite each building, which lead from the terraces to the lawn.

Beautiful as are the exteriors, it is the interior which appeals mostly to the medical student. Every modern convenience to help him in his work is here to be found. Furthermore, one of the chief objects of the new school is to promote original research, to which end an elaborate system of laboratories has been built. Details of construction are set forth in another column.

One drawback is noted concerning this school; it is said to be lacking in clinical material, and that the hospitals and dispensaries are at an inconvenient distance. The lack of clinical facilities is regrettable. But not so regarding clinical material. We feel that it is possible to have a superabundance of such material, the result being rather detrimental to good scientific work. There are, for instance, metropolitan clinics in general medicine, which are visited by several scores of new cases in an afternoon. This "rich" material (of which the managers, bent on securing endowments, boast so largely in their catalogues) cannot possibly be examined in any other but a perfunctory way during the clinic hours. Practically speaking the half of them are hurriedly given "Stokes" and the other half an emphysema mixture. To other clinics come half a dozen new cases of an afternoon which, being exhaustively studied, result in the evolution of good practitioners. If Harvard's clinics are of the latter kind she will have reason for self-congratulation rather than regret.

GASTRONOMY.

THE Hall of Fame is all very well in its way; but the illustrious company represented there is sadly incomplete. (None realize this better than we doctors; for our profession finds place there almost not at all). We would here point out a very serious omission, indeed, in that no niche has been prepared for Brillat-Savarin, the immortal author of the book entitled "The Physiology of Taste." This great man born in the latter half of the eighteenth century and died full of honors and greatly respected by his community some eighty years ago. He preserved, states Clyde Furst in the *Evening Post,* the choicest flavor and charm of many years of social life "in the book he apparently intended to leave, at his death, as a legacy of good cheer to his friends."

There are many who somehow have the idea that Epicurus of old was a glutten and a debauchee. Authoritative history informs us there never was a more temperate man. He simply contended that the human animal was entitled to the sane enjoyment of life; to which end a discreet attitude was essential in all things, intellectual, spiritual and physical. He knew well, and so taught, that he who ate too much or drank too much was guilty of conduct detestable and abhorrent to the philosopher, in that the subsequent condition of those indiscreet in such appetites entained many pangs and much suffering and sickness. In like manner did Savarin inculcate the means to a wholesome enjoyment of the present life. To this end temperance in all things is essential. To him the business of eating was a very serious one, as he impresses us by many quaint but weighty aphorisms. To get the full meaning one has to ponder well. For instance: "But for life the universe were nothing; and all that has life requires nourishment." "The fate of nations depends upon how they are fed." "The man of sense and culture alone understands eating." "The discovery of a new dish does more for the happiness of the human race than the discovery of a planet." After musing upon these quotations one must conclude that they certainly are inspirations of genius.

Savarin's work has two objects to fulfil: to lay down the fundamental theory of gastronomy so that this science would take its place among the others, to which it has an incontestable right; and to define with precision what must be understood by the law of good living, so that for all time that social quality may be "kept apart from gluttony and intemperance, with which many have absurdly confounded it."

The great work of this kindly and genial man should have a place in cultivated libraries to-day. As in Savarin's time, we now eat too much; and the cocktail is certainly too much redundant in our day, as were the liqueurs in his. These excesses were abhorrent to Savarin, and it is necessary that the lesson which he taught should be impressed anew upon our present civilization.

Among the "meditations" in his book there is one on the Pleasures of the Table. The sentences have a Gallic flavor, and present a delightful picture of old-time manners: "Let the number of guests be small, that the conversation may be constantly general; of various occupations, but analogous tastes; the men of wit without pretension, the women pleasant, but not coquettish. Let the dishes be few but choice, and the wines of the first quality; the order from the more substantial to the lighter, the simpler to the finer flavors. Let the meal proceed without hurry or bustle; the coffee be hot, the liqueur chosen with care. Let the room to which the guests retire be large enough for cards, for those who cannot do without them, while leaving ample scope for conversation; the guests animated with the hope of still further pleasure. Then let the tea be not too strong, the toast artistically buttered, the punch skilfully made. Finally, let nobody leave before eleven, and everybody be in bed by twelve." Truly, the art of eating and drinking is one well worth cultivating; with its advance it is certain that doctors' fees would correspondingly decline.

ACCURATE EXPRESSION.

THE battle of the three hundred words continues to be fiercely waged. The humorists from across the water maintain their delicious light artillery play over our somewhat presumptuous efforts, on this side of the Atlantic, to reform the mother tongue. We had no idea to take part in this summer season warfare. But a chink which we detect in the armor of a champion of purest English is too much for us, and we beg gently to insinuate a lance prick.

The *London Chronicle,* in an article calculated to show that laziness does not always confer the longevity which some claim for this propensity, reminds its readers that "of proverbial laziness was Thompson, the poet, drowsing away the greater part of his life in his garden at Richmond, listening to nightingales, writing interminable poems that everybody now admires and nobody reads." Can a man be called lazy who writes interminable poems? Certainly this cannot be said of a man who would read interminable poems. We continue to quote seriatim: "There he could often be seen standing eating the peaches off the trees with hands in his pockets." He must have been a very tall and a very agile man, this Thompson; and one sure to outdo all others in a Hallowe'en contest, to be able to eat peaches off trees without having to use his hands to this end. He died at 48, much too

young for one possessing gifts so remarkable.

If it is proper to mention how Macaulay, that master of concise English, disposed of the absurd poetry of one Mr. Robert Montgomery. Macaulay, among many pertinent observations, inquires how the slain warrior in one of the latter's epics, while "lying on his bleeding breast" continues to "stare ghastly and grimly on the skies."

We submit that in any language a thing even more essential than correct spelling is that thoughts shall somehow be accurately expressed.

BIBLIOGRAPHICAL

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual of the Science of Chemistry and its Applications to Medicine and Pharmacy. By John Attfield, F.R.S., M.A., Ph.D., F.C.S., etc., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc. New (19th) edition, specially revised by the Author to accord with the New U. S. Pharmacopœia, edited by Leonard Dobbin, Ph.D., F.I.C., etc., Lecturer on Chemistry in the University of Edinburgh, etc. 12mo, 760 pages, illustrated. Price cloth, $2.50, net. Lea Brothers & Co., Philadelphia and New York, 1906.

The revision of this standard work was confided by the author to Mr. Leonard Dobbin, of the University of Edinburgh and examiner in Chemistry on the Board of Examiners for Scotland of the Pharmaceutical Society of Great Britain.

The text has been brought thoroughly up to date and to accord with the most recent Pharmacopœias of the United States and of Great Britain. The original plan of the book has been strictly adhered to, and seventeen large editions in the United States and eighteen in Great Britain are an evidence of the approval of the professions of Medicine and Pharmacy in the two great English-speaking nations of the world.

The author's ideal has been to produce a Manual of Chemistry for Medical and Pharmaceutical students, one in which not only the science of chemistry is taught, but in which the chemistry of every substance having interest for the followers of Medicine and Pharmacy, at more or less length, and in proportion to its importance and its position in relation to the leading principles of Chemistry, is set forth with all attainable exactness.

International Clinics. A quarterly of illustrated clinical lectures and especially prepared original articles on various subjects. Edited by A. O. J. Kelly, A.M., M.D. Vol. III. Sixteenth Series. 1906. J. B. Lippincott Company, Philadelphia.

This welcome volume comes to us laden with valuable matter as usual. There are articles on pleurisy, bronchitis, dilatation of the heart, treatment of syphilis, autointoxications, some rashes of typhoid, the irregular heart, chronic joint affections, milky urine, the surgical complications of pneumonia, hernia, some surgical results which may follow improper feeding and upon various other subjects. It is all meat and worthy of assimilation.

Diet and Food. Considered in relation to strength and power of endurance, training and athletics. By Alexander Haig, M.A., Oxon. F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Author of "Uric Acid as a Factor in the Causation of Disease," etc. Sixth edition, with seven illustrations. pp. 139. Price, $1.00. Philadelphia: P. Blackiston's Son & Co., 1906.

The author says that the interval which has elapsed since the last edition of this book has served only to deepen his conviction of the importance, mental and physical, which attaches to the right understanding of dietary questions.

Diet, as at present used, is no doubt the product of a vast amount of ignorance, and generally quite fails to fulfil its proper purpose, and it is the aim of this little volume to show that it may be easily made to fulfil its proper purpose, and the dangers to life and health averted. The subject is worthy the attention of every practioner of medicine.

Toxicology. The nature, effects and detection of poisons with the diagnosis and treatment of poisoning. By Cassius M. Riley, M.D., Professor of Chemistry and Toxicology in Barnes University and Dean of Barnes College of Pharmacy, etc. Third edition, revised and enlarged, with illustrations. pp. 215. 12mo. Price, $1.50. P. Blakiston's Son & Co., 1906.

This is a most excellent text-book for students, up-to-date, practical and useful. It will be found of service to the general practitioner, especially as to diagnosis and treatment of poisoning cases.

A Text-Book of Histology. By Frederick R. Bailey, A.M., M.D., Adjunct Professor of Normal Histology, College of Physicians and Surgeons, New York. Second and revised edition, profusely illustrated. Octavo, pp. 497. Price, $3. New York: William Wood & Company, 1906.

This book was issued for the purpose of giving the student of medicine a text-book of histology for use in connection with practical laboratory instruction, and especially to furnish to the instructor in this subject a satisfactory manual for class-room teaching. The work has proven a success in every way and a second edition has been called for, with no change in the general plan and scope. The chapter on the Nervous System has proven a most valuable feature, and it has been revised to date.

The volume should be placed in the front rank of its class.

The Medical Student's Manual of Chemistry. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Toxicology in Cornell University. Sixth edition. Octavo, pp. 820. Price, $4. New York: William Wood & Company, 1906.

The present edition of this standard work comes to us thoroughly revised, in part rewritten, and greatly enlarged to keep pace with the tremendous growth of the subject.

The work is that of an experienced teacher in a large field, who ought to know what the student requires.

The first edition of this book is before us as we write, and it contains 370 pages; the present edition has 820, and there seems no possibility of abridgement.

The book should be the constant companion of every medical student, in order that he may, as the author well says, be able to learn how to "think chemistry."

A Text-Book of Genito-Urinary Diseases. Including functional sexual disorders in man. By Doctor Leopold Casper, Professor in the University of Berlin. Translated and edited with additions by Charles W. Bonney, B.L., M.D., Assistant Demonstrator of Anatomy, Jefferson Medical College, Surgeon to the Southern Dispensary, Philadelphia, with 213 illustrations and 23 full page plates, of which 7 are in colors. Octavo, 618 pp. Price, $6. Philadelphia: P. Blakiston's Son & Co., 1906.

This book is offered with the belief that it represents the best in its line now available, and that it reflects the combined result of large clinical experience, modern methods of research and conservative judgment. All will admit that the distinguished author, Prof. Casper, stands very high in his specialty, and there can be no doubt as to the reception of his work in English.

The text reads easily and is well arranged for study by means of different sized type. The work will surely find a warm reception.

The Nervous System of Vertebrates. By J. B. Johnston, Ph.D., Professor of Zoology in West Virginia University. With 180 illustrations. Octavo, pp. 370. Price, $3. Philadelphia: P. Blakiston's Sons & Co., 1906.

This is an attempt to trace the phylogenetic history of the nervous system and to show the factors which have determined the course of evolution.

A text-book of comparative neurology fills a long felt want. The study aims to describe the mechanism by which actions are directed and adapted to the conditions of life. Little space is given to mere descriptive anatomy, but every effort has been made to bring out clearly the functional significance and relationships of the structures described, and to interest and train the student in the interpretation of structure in terms of function, adaptation and evolution. The worker in this department will find the book of service.

Progressive Medicine. A quarterly digest of advances, discoveries and improvements in the medical and surgical sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. III. September, 1906. Diseases of the Thorax and its Viscera, including the Heart, Lungs, and Blood Vessels; Dermatology and Syphilis; Obstetrics; Diseases of the Nervous System. pp. 298. Lea Brothers & Co., Philadelphia and New York, 1906.

Dr. Ewart sums up the diseases of the thorax including the subject of pulmonary tuberculosis, so that a good idea may easily be had of the progress of the year in this important branch of medicine.

Dr. Gottheil reviews Dermatology and Syphilis; Dr. Norris Obstetrics, and Dr. Spiller the Diseases of the Nervous System.

This is an excellent digest of the advances, discoveries and improvements in the sciences of our profession and should be of interest to all.

A Manual of Otology. By Gorham Bacon, A.B., M.D., Professor of Otology in the College of Physicians and Surgeons, Columbia University, New York; Aural Surgeon, New York Eye and Ear Infirmary. With an introductory chapter by Clarence John Blake, M.D., Professor of Otology in Harvard University. Fourth edition, revised and enlarged. Handsome 12mo volume of 485 pages, with 134 illustrations and 11 plates. Price, cloth, $2.25 net. Lea Brothers & Co., New York and Philadelphia, 1906.

In the rapid exhaustion of three revisions of this work the profession at large, as well as teachers of Otology have come to recognize and appreciate it as "The Standard Manual" of the subject on which it treats.

The author in this edition has improved and added to the illustrations and has found it necessary to increase the number of pages to enable him to include all the important advances made in Otology since the publication of the previous edition.

Among the new topics considered may be mentioned Osteomyelitis, Primary Jugular Bulb Thrombosis and Suppurative Inflammation of the Labyrinth, while the portions treating on Leucocytosis, Lumbar Puncture and the Treatment of Facial Paralysis, have been entirely rewritten.

In view of the importance of the examination of pus, especially in suppurative middle ear disease, the method of preparing smears from pus, the making of cultivations and the physiological inoculation experimentation will be found carefully considered in an appendix at the end of the volume.

The author has endeavored to enhance the clinical character of the work so as to make it more than ever serviceable to both students and practitioners.

CORRESPONDENCE

OVERWORK AND LONG HOURS.

To the Editor of THE MEDICAL TIMES:

My attention has been called to the editorial in your October number, entitled "Railroad Accidents," and you speak of the overwork of men and long hours of duty.

Overwork and weariness necessarily reduce efficiency, and I am glad to say that the Rock Island takes great pains to afford its men suitable opportunity for rest, though possibly they do not always avail themselves of this opportunity. It is a good thing, however, to have attention called to this matter through such journals as yours.

I know, however, that you want to be fair, and hence I take the liberty of calling attention to collision No. 29, to which you make special reference. As this collision did not occur on the Rock Island, I feel more at liberty to speak freely regarding it. I am satisfied you did not carefully consider the special reference to this collision on page 8 of Accident Bulletin No. 19, of the Interstate Commerce Commission. It is true, the operator had been on duty a long time—too long for effective work; but in the detailed report, the Commission uses this language: "He had worked an excessive length of time to accommodate his fellow operator, and without the permission or knowledge of his superintendent." Here you will see the act of the operator himself, without the knowledge, permission or approval of his superintendent, placed him in such a position that he could not give effective service. Although the railway company may be liable for the injuries resulting, yet it cannot be

charged that it required its employee in this case to remain on duty an excessive length of time. Many, even the majority, of the most unfortunate and deplorable collisions occur through what may be termed "man failure"; that is, the failure of some individual who has had suitable opportunities for rest, to properly observe rules, orders or signals, and it is this human failure that it is impossible to always provide against.

Yours very truly,

G. E. McCAUGHAN,

Chicago, October 3, 1906. Claims Attorney.

"METHODS FOR FACILITATING NORMAL LABOR."

To the Editor MEDICAL TIMES:

Dr. Marrs' article in THE MEDICAL TIMES for September, "Methods for Facilitating Normal Labor," struck me as being of great interest, but, unfortunately, the writer entirely omitted to name three of our most useful agents for bringing about natural delivery. Moreover, I cannot quite look upon the *forceps* as "facilitating normal labor"; an instrumental delivery can never be really *normal*. The use of the low forceps, or one blade thereof, may, it is true, enable us to deliver a woman who might not be delivered without damage to herself or the fœtus if nature were left alone or aided by the accoucheur manually. The fact that many physicians have delivered hundreds and hundreds of women without ever having recourse to the forceps proves conclusively that most labors are normal and may be conducted without instrumental aid; indeed, too often such interference turns a normal into an abnormal labor. The use of forceps in abnormal labors is most certainly called for, but *then* we are seeking to correct a pathological condition. If we really want to facilitate normal labor we must begin early and work intelligently and it is here that Dr. Marrs' suggestions seem to be weak. First and foremost, he entirely forgets our most reliable remedy for the parturient woman—*ol. ricini*. One-half to one ounce of castor oil three times a week during the last month of pregnancy will enable nine out of ten women with normal pelves to experience a perfectly normal and almost painless accouchment. The writer has proven this fact time and time again; in one case (formerly reported) the woman, who had "hard labors" with each of her five prior children, delivered herself with one pain and before even the nurse could reach her. Another, who had borne two children (and suffered severely with each one for twelve hours) felt her first pain at 6 p. m., and was delivered an hour later. This woman, it is true, had in addition to the castor oil, aletrin and viburnin (gr. 1-6 each), three times daily. The latter drug (in the form of viburnum) Dr. Marrs lists among the "sedatives," but viburnin and aletrin are more than "sedative," each drug being a most useful *partus preparator*—serving perfectly to "facilitate NORMAL labor." Viburnin seems to exert a selective action upon the uterus, through the nerves: it markedly improves the circulation of that organ (hence its nutrition) by relieving spasm and regulating functional activity. In the non-pregnant state we find menorrhagia and metorrhagia benefited by its use, and pregnant women (with "irritable" uteri) who are apt to abort will, under its exhibition, carry the contents of their wombs to full term and deliver themselves normally. Pains are full and regular; "false," nagging spasm are never met with, and involution is rapid and complete. "After-pains" rarely appear—as is natural—and post partum hemorrhages need not be feared. Viburnin may indeed be looked upon as a true "facilitator of *normal* labor." If it is given with ol. ricini (which causes relaxation of the soft parts and an empty intestine) forceps will rarely be needed: for that matter, interference of any kind is usually entirely superfluous.

Aletrin (from *aletris farinosa*, "star grass") is a well-known "uterine tonic," and a component part of nearly all the quack and "regular" formulæ for "female derangements." It is of real value, however, only when given for some time and in conditions of uterine atony. In the pregnant woman the uterine muscles are put to a severe test and—among civilized races especially—more or less atony exists. Overwork, improper diet, and constant child-bearing aid to produce just such conditions, and it is in these very women that abnormal labor is most apt to be met with. The timely use of aletrin will cause a positive improvement in muscular tone, as is evidenced frequently by the rapid disappearance of prolapsus and relaxed tissues about the generative tract. The weak and anemic woman may well be given aletrin and viburnin (aa gr. 1-6) three times daily for the last two months of pregnancy and, if anemia is marked, small doses of iron may be added with advantage. The castor oil will prevent constipation. Here, then, are three positively efficacious remedies which will in every case aid us to secure "normal delivery."

There is yet another drug invaluable to the accoucheur—caulophyllin. This is the active principle of *caulophyllum thalictroides*—"blue cohosh," which is without question *the* remedy for "rigid os"—especially when it assumes the form of a thin band of knife-blade regidity and width. Moreover, it beneficially affects the uterus and adnexa and will, if exhibited in small repeated doses, speedily put a stop to the many annoying conditions which distress so many women during the last few months of child-bearing. Nervousness—with a constant feeling of weakness about the uterus—cramping pains in pelvis, threatening abortion and persistent discharge from the uterus, all these symptoms disappear if caulophyllin is exhibited, with possibly aletrin or other indicated remedy. But, where the drug serves us best is *during labor*. We are confronted by failing pains (which assume a "teasing," wearing, and entirely useless character), and a rigid os. The exhibition of quinine here is dangerous; of chloroform, undesirable often; indeed, the latter drug in this class of case may cause profuse hemorrhages (post partum). Here, it will be seen, we are on the verge of having a *normal* labor turn into an abnormal process, and, therefore, caulophyllin, saving the position, is one of the most valuable aids in "facilitating normal delivery." Dr. Marrs should become familiar with its efficacy. Just as soon as the condition is suspected (gr. 1-6—1-3) should be exhibited with a little hot water, and in fifteen minutes the dose may be repeated. Quite often relaxation is noted before the second dose is given, and a third is rarely called for. If the woman has been properly prepared (with the medication described) "rigid os" rarely presents; but if she has not been so cared for viburnin may well be added to the caulophyllin (gr. 1-6). As a result irregular muscular contraction ceases, innervation increases, the vessels become evenly

supplied with blood, and conditions generally assume a normal aspect. Pains become expulsive and regular and the *os* dilates before the oncoming head. It might be mentioned here that "rigid os," when it assumes the form of an evenly thickened and muscular cervix uteri, must not be regarded as a pathological condition. Here TIME is required in nearly every case—with, perchance, a few doses of viburnin. The rigid os which accoucheurs fear is the thin, cicatricial-like band (which persists after normal dilation has occurred above) or the round, cord-like band which obstructs the passage of the head. In either condition caulophyllin promptly relieves the spasm, causes rapid relaxation and, moreover, sets up conditions throughout the uterine tissues which compel normal contraction of the fundus and expulsion of the child. Normal separation of the secundines and satisfactory involution are moreover to be confidently looked for.

Dr. Marrs must add caulophyllin, aletrin and viburnin to his list of agents for "facilitating *normal* labor."

Chicago, Ill. GEORGE H. CHANDLER, M.D.

TREATMENT OF DISEASE WITH VARIOUS GASES.

To the Editor of THE MEDICAL TIMES:

After a number of years of scientific research and carefully conducted biological experiments, I find myself with accumulated data in a position to announce that we have within our power the means of destroying germ or bacterial life in the living human body, changing pathological tissues or substances to those of health, or, rather, restoring a state of health and vigor to a living being or creature which has became diseased and sick. For centuries we have been attempting to cure disease with drugs; they have only helped us. We seemed to have lost sight of the fact of the chemical formation of man or organic substances. The elementary basis of the inorganic world is complex and multiple, but of the organic it is simplicity itself, consisting practically of only four elements, the elementary gases, Carbon, Hydrogen, Oxygen, and Nitrogen; of these four elements the entire organic world is composed, catching in their folds of formation to act as a nucleus an occasional atom of inorganic matter. Organic bodies are the results of spherical crystallization, this being a term of my own to be applied to particles of organic matter formed from the elementary gases by the presence of an electric current which always forms a circuit, thus giving the spherical form to organic cells in their liquid and semi-liquid state, of course becoming more irregular as they become more solid and subjected to pressure. From gas to liquid to solid or semi-solid or the stages through which the organic must pass and to dust, or the inorganic. What two conditions do we find to exist in deviation from health, either retrograde, back to a more liquid state, such as fatty, dropsical or anemic states, or a too far advanced process to a more solid state, such as is witnessed in the emaciated body, or in extreme old age? We have always looked upon our alimentary canal and our respiratory or lung apparatus as our two means of support, that through food and drink we supplied the body needs, and through our lungs from the atmospheric air all that our body needs for existence! Have we not been losing sight of the immense area of our bodies which in a natural animal state should be exposed to a gaseous environment at a pressure of 15 lbs. to the square inch? Are we not aware of the fact that gases are readily diffusible through animal membranes? Has not this statement been made and substantiated in some of our oldest and most reliable chemical works? We are given the example of separating two gases by means of a chamois or buckskin and allowing them to remain a while, when it will be observed that a process of diffusion will have taken place through the membranes, and they will have combined in their natural proportions. This process of diffusion I have demonstrated will take place just as readily through the animal or man. Do we not also know that should our bodies be shellacked over we would perish? This fact was demonstrated many years ago in the early history of physiologic study. Is not a very large proportion of our bodies water, H_2O, a product constantly being found and held in suspension by the atmosphere? We say that we must eat a certain amount of nitroginous food; what for? to secure nitrogen, for it is nitrogenous that is a part of our chemical organic structure. What does the atmospheric air contain? Nitrogen, 79.2 parts to the 100 volumes; a gas in this enormous proportion readily diffusible through animal membranes and tissues. Atmospheric air, as we also know, contains oxygen, 20.8 volumes to the 100; also, a little carbon with oxygen CO_2 and hydrogen an aqueous vapor. Experiments which I have conducted on living animals conclusively prove the fact that a withdrawal of any one of the four elements—hydrogen, oxygen, nitrogen, and carbon—bring about degenerative changes or deviations from the normal state of health, both in the blood and tissues of the body.

Several observers have noted the change produced by the addition of oxygen or ozone; I also note thatchanged or abnormal proportions of the gases produce menstrua or environment more suitable for some of the lower forms of life, such as bacterial life, rather than for healthy animal cells and blood corpuscles. Curtis noticed that the red blood corpuscles upon exposure to ozone (double oxygen) in the living body, increased in number, became more spherical and full, in fact, gave evidence of more perfect health; whereas, in inflammations, hyperamea, or blood stasis, where we note a bluish color showing an insfficient oxidation or an excess of carbon dioxide, the red blood corpuscles become more flattened, forming discs which subsequently adhere together to form the rouleaus so commonly observed, then follows the escape of serum from the vessels into the tissues, leucocytes multiply, amœboid movements commence cell asphyxia, disintegration, suppuration and the development of bacteria, a lower form of cell life, the cell maggot. Death en masse of nitrogenous substances is accompanied by the formation of ptomaines, likewise in cellular death we find ptomaines and febrile manifestations, proportionately. The electric manifestations of the body seem to be caused by the process of diffusion of the gases and their mechanical and chemical combinations producing atomic function such as occurs in the atmosphere and throughout nature in general; and it is here that we have been at fault in experiments upon the body, with electricity of ordinary manufacture; there is evidently a difference in electricity, that of the living body being organic electricity, just as there is a difference between radium produced in the depth of the world under great pressure from many of our electrical preparations. The naturally healthy state of primitive man as compared with our overcrowded civilization, the

fact as mentioned in the Scripture, that man in the earlier history of the world reached a much greater age, astronomy proving that atmospheric conditions were then somewhat difficult, perhaps more abundant in vital gases. The influence of certain localities on disease, also some experimental work of others, such as the exposure of wounds infected with tetanus, to the air, the treatment of septicemic states with ozone, and the cure of chronic ulcers by means of oxygen, in addition to my own research along these lines during the past ten or twelve years, proves conclusively that it is by the diffusion of gases through the skin and tissues of the body that the future treatment of disease may be accomplished, and successfully. So far in our discussion, we have only considered hydrogen, oxygen, nitrogen, and carbon as related to a state of health, but we must take a step farther. Disease is already rampant so that through lack of knowledge how to live, and forced unhealthy environment, man has become almost universally abnormal, and multiple diseased states are ever present amongst us. Changes of chemical balance have occurred, and some organ or perhaps the entire system is found to be infected with some form of germ or bacterial life, under such circumstances what are we to do? Give a dose or two of calomel as of yore, or apply one of our four elementary gases? In many cases one or more of our four elementary gases may be all that is required, but not so, I find, with all forms of germ disease. In this class of diseases a new life, and in some cases a very tenacious life, has by suitable environment been formed and a slightly changed menstrua by means of non-destructive elementary gas will not readily destroy them, in these I find by tests made upon uninoculated guinea-pigs that we must diffuse what may be termed antiseptic gases, or rather, gases which are destructive to lower forms of organic life, but not when properly applied to higher or animal forms of life. Such gases as chlorine, bromine, iodine, and mixed gases, are capable of diffusion and will fill this place. The method of applying gases so that diffusion may take place, is by encasing the body in an impervious bag or suit, quite roomy, like the air suit used by some of the long-distance swimmers, of course leaving the head uncovered and thoroughly cleansing the skin. This suit, or bag, I distend with whatever gas I wish to use, and await results; they are wonderful and medicine has a great and scientific future.

Hinsdale, Montana. W. MAZYCK MEMMINGER, M.D.

The furor secandi of some surgeons with relation to appendicitis was recently reprobated by Dienlafay, who has written an important work upon this disease. He declares that many such operations are done in consequence of erroneous diagnoses. It is his belief that the physician and not the surgeon should make the diagnosis. (In this we disagree with him. The efficient surgeon is not only an operator; he is—or should be—at least as good a diagnostician.) Dienlafay, however, cites many cases in which the patients, after being operated upon for appendicitis, still felt the same pains in the same region. The surgeon had in such cases operated under the belief that appendicitis existed: whereas only hypertrophy of the intestinal membrane or typhocolitis existed. (Nevertheless when the diagnosis has been established beyond peradventure, the appendicitis is a surgical disease and should be so considered.)

RETROSPECTIVE

Why the hair turns white was recently discussed by Metchnikoff at a meeting of the Academie des Sciences. One explanation is that the individual hairs become dry with age and that the air penetrating into their interior destroys their pigment; another is that the coloring matter of the hair of any part of the body disappears under the influence of a chemical substance. Metchnikoff belief is that the whitening of the hair is a vital phenomenon due to cellular activity. Hair is not an inert material. It is alive and is composed of living cells provided with prolongations which envelop and destroy pigmentary substances in contact with them. These "chromophagic" cells thus gradually destroy the coloring matter of the hair and spread in each direction both toward the hair root and toward its extremity. One may observe that after the greater part of the hair has become white the root still remains colored. The hair of women who use heated curling tongs is comparatively slow to lose its color; Metchnikoff believes it is the heat which destroys the chromophagic cells. He experimented upon animals whose hair is white in winter and dark in the summer; and found that in Alpine hares the change from dark to white follows the same course as in the human subject. When a person's hair "turns white in a single night" from mental shock the change is due to excessive excitation of the chromophagic cells which thereupon destroy the coloring matter of the hair in a few hours. So Metchnikoff maintains.

The gastric contents withdrawn by means of the bucket are examined directly without being filtered as follows (Einhorn):

1. By means of blue litmus paper we determine whether the contents are acid; if so, the paper turns red.

2. With Congo paper we determine whether there are free acids or only acid salts. The presence of free acids turns Congo paper blue; otherwise the Congo color is not changed.

3. If there are free acids it must be ascertained whether hydrochloric acid is present or not. To this end take one drop of the contents and one drop of Günzburg's solution and mix them thoroughly in a white porcelain dish. This dish is now heated over an alcohol lamp; when the fluid evaporates a cherry red color appears in the same spot whenever hydrochloric acid is present, even in a very small amount.

4. The amount of hydrochloric acid, or the acidity, can be approximately determined by gradually diluting one drop of the contents with water until the abovementioned Günsburg's reaction for hydrochloric acid begins to disappear in the diluted fluid. Normally the stomach contents can be diluted from eight to ten times and yet will give the Günsburg reaction. In this way cases in which we are able to dilute only five times, or even less, must be considered as cases of subacidity (too small amount of acidity), and cases in which we are able to dilute more than twelve times as cases of hyperacidity or superacidity (too large amount of acidity). In cases in which no acidity whatever is found we have to deal with anacidity.

5. Pepsin and rennet, the true ferments of the stomach, generally accompany each other, and we can deduce the presence of one from the other. We prove the presence of the ferments by making this test for the rennet ferment: Two drops of the stomach contents

are mixed with about 2 c. c. of milk, and kept either in a warm place or in a glass of warm water. The presence of rennet curdles the milk in from ten to twenty minutes.

By the use of the bucket a small quantity of gastric contents can be obtained for examination without great trouble or without causing the patient any exertion. Even in ulcer of the stomach there is no danger whatever from hemorrhage as a consequence of the examination. This method is therefore adapted to all cases in which ulcer is suspected and where we desire to avoid the tube. It is very suitable for the general practitioner who does not intend to make an exact analysis of the gastric contents, but who wishes to determine whether or no there exists free hydrochloric acid. Of course the tube is as a rule preferable, giving a larger amount of gastric contents and permitting a more detailed examination. Günsburg's (phloroglucin-vanillin) test: Phloroglucin, 2 parts; vanillin, 1 part; alcohol, 30 parts.

Diabetes Mellitus in Children.—Linergood reports three cases of this disease, which is rare—fortunately, for children almost never recover. In one of these cases (that of a female child aged two and a half years) the urine was watery and had an acetone odor, with a specific gravity of 1040. Two quarts were passed in twenty-four hours. There was vomiting and tympanites. The child was given calomel, salol and soda bicarbonate; later on iron, quinine and strychnine. She began to improve upon this, the thirst and hunger diminishing, the frequent urination abating, and playfulness and activity being manifested. She was, however, suddenly seized with an attack of vomiting, followed by dypnœa and convulsions; upon which sustained coma and death the morning after the seizure.

Mercurial inunctions in infantile syphilis are rightly considered the best form of treatment by Canby (*Jour. de Med. de Paris*, Mch. 4, '06). Equal parts of blue ointment and lanolin are appropriate; of this ʒss should be rubbed into the skin every day. There is no risk of mercurial poisoning in these cases; stomatis never develops. The site of inunction should be varied daily—the axillæ, the iliac fossæ, the buttocks and the hypochondrium. Five minutes should be devoted to the rubbing: and a piece of flannel upon which the ointment should be left as a "bellyband" about the abdomen.

The legal responsibility of the physician for the unborn child was considered by C. S. Bacon in his chairman's address before the Obstetrical Section of the A. M. A. The child *in utero* is as much a human being before birth as afterwards: however, its biologic and legal status do not altogether coincide. After birth all persons are legally on the same plane; and their lives cannot be taken except by way of self-defense or when the State finds it necessary for the welfare of society. The fœtus has not the same legal position; its destruction is under some circumstances justifiable. The physician should understand what his duties and responsibilities are in certain obstetrical emergencies. Fœticide is in this respect different from an ordinary surgical operation. Bacon points out that the old common law rulings have been replaced by statutory enactments, in which it is generally recognized that abortion is permissible when required to save the life of the mother. In some States the advice of two physicians must be secured to determine the necessity of this step. In any event consultation, though not essential, is always desirable. Fear of suicide or of remote results developing from a nervous condition does not justify abortion. Its induction on account of probable injury to health might lead to trouble if brought to court. Operation is admissible whenever delivery is impossible without cæsarian section or some operation to enlarge the pelvic girdle; and when this alternative is refused by the mother. Embryotomy to save the mother's life would undoubtedly in this country be justified by the courts. In some States the burden of proof that it was necessary might be put upon the physician; but in most it would be on the State. Many conditions which were once deemed indications for embryotomy are not now so considered; however, the physician's legal responsibilities are comparatively simple. The law does not recognize that the life of the unborn child is of equal value to that of the mother. In deciding on his moral responsibilities the physician must consider that what is legally safe may not always be morally right; he will often have to resist the desires of the father and relatives to have the fœtus sacrificed. The only ground on which the physician "can stand when he decides to destroy the fœtus is a kind of implied authorization on the part of the State which agrees to uphold the right of the mother to self-preservation when her life is endangered by that of the fœtus."

The Drug and Liquor Habits.—H. G. Wagner (*Cleveland Med. Jour.*) administers hyoscine hydrobromate (1-200 gr.) combined with atrop. sulph. (1-600 gr.) and strychnine (1-150 gr.) to morphine and cocaine habitues and habitual alcoholics. A special nurse night and day is required, inasmuch as the patient is by this medication purposely kept in a state of mild delirium for from thirty to ninety hours. The dosage varies with the patient; but is repeated every two to six hours, as indicated by changes of mouth, dilitation of pupils and delirium. Sleep is not usually produced. On emerging from the influence of the hyoscine the patient soon develops a vigorous appetite, sleeps soundly after the first two or three nights, regaining his normal vigor and weight in the course of a month.

Alcoholism.—With regard to the more or less successful management of cases by means of various secret remedies, *Treatment* cautions us as follows: First, these preparations are given in the same dose to all ages, sexes, conditions, weights, etc. This is contrary to rational prescribing; he who prescribes rightly will of course take all these points into consideration. It is cause of wonder, in England as in this country, how the clergy and certain philanthropists can be so blind as to advise the indiscriminate employment of such nostrums. Again: some of these preparations contain either belladonna or atropine. This drug oftentimes induces very grave results, as mental instability and delusions, especially if the preparation be sold to a victim not under supervision. The aphrodisiac properties of belladonna are especially deplorable in such cases.

Blood cells in health and disease are classified by Scott as follows (*Jour. Bact. and Path.*, Jan., '06): *The Leucocytes:* Immature forms are—the finely granular eosinophile (neutrophile) leucocyte; the coarsely granular easinophile (eansinophile) leucocyte; the basophile myclocyte; the hyaline myclocyte; lymph

cell of adenoid tissue. Mature forms are—the finely granular eosinophile (neutrophile) leucocyte; the coarsely granular eosinophile (eosinophile) leucocyte; the basophile leucocyte; the hyaline leucocyte; the lymphocyte. *The Erythrocytes:* Immature forms—in the embryonic type of formation, megaloblasts; in the adult type of formation, normoblasts. Mature forms—in embryonic type of formation, megalocytes; in the adult type of formation, normal red corpuscles. There are never any transitorial forms between the various groups. Scott fixes his blood films by holding them for five seconds over formalin vapor, and then dropping them while still wet in absolute alcohol. The films are then stained in Jenner for two minutes, washed in distilled water, rapidly dehydrated in absolute alcohol, cleaned in xylol and mounted in xylol balsam, care being taken not to let the film dry. Scott finds that the basophile cell of the marrow is the source of the basophile leucocyte; and that the hyaline cell of the marrow is an immature form of the hyaline leucocyte. The large lymphocytes seen in lymphatic leukæmia are the hyaline leucocytes. He finds, as does Ehrlich, that lymphocytes are distinct from hyaline leucocytes; and also confirms the latter's views as to the classification of other forms and their source. There is an embryonic type of blood formation in which megaloblasts produce megalocytes; and an adult type in which normoblasts are the source of normal red cells.

Rhythmic head movements in exophthalmic goitre are explained by Bocciardo (*Treatment*, July, '06): The vertebral arteries describe two curves before entering the cranium through the foramen magnum. These curves, under the influence of the blood wave which passes through the arteries at each systole, tend to straighten out and transmit an impulse from below upward to the occiput, very close to the fulcrum represented by the vertebral column. During each systole, therefore, the head is moved from behind forward. As regards the movement from side to side, the probable cause is a diminished pressure in the right corotid artery, owing to the greater development of the right thyroid, which is present in those cases in which lateral jerks occur. This asymmetrical development of one lobe of the thyroid is often noted in this disease. When the two factors coexist, the head oscillates from right to left and from before backwards. This symptom is useful in diagnosis.

Chronic atropine poisoning was manifested in a case reported by Tyrrell (*N. Y. Med. Jour.*, Aug. 11, '06). Because of a slight cloudiness in the centre of the cornea which resulted from the application of a caustic, an tropine solution was prescribed, in order that the patient might see around the scar. This solution was used to good effect, so far as the eyes were concerned; but with results very injurious to health. A perfect recovery was made under appropriate treatment, with elimination of the atropine.

Standards of Medical Education.—*The American Medical Association*, meeting in July, 1905, considered that the *ideal standard* to be aimed at should consist of: (a) Preliminary education sufficient to enable the candidate to enter our recognized universities, the passing upon such qualifications to be by the state authorities. (b) A five-year medical course, the first year of which should be devoted to physics, chemistry and biology; such arrangements should be made that this year could be taken either in a school of liberal arts or in the medical school. Of the four years devoted to pure medical work, the first two should be given to anatomy, physiology, pathology, pharmacology, etc., much time being spent in laboratories; in the last two there should be hospital and dispensary work in the study of medicine, surgery, obstetrics and the specialties. (c) A sixth year as an interne should complete the course. Under such a scheme most men would begin their medical studies at about 18, and would finish at 24 or 25. A college education would be a desirable preparation; but it would never be well to make such a college education a requirement to the study of medicine, as it would make the age of graduation from 27 to 28 years, which is too old a period for a man to begin his life work.

Obviously this excellent scheme of requirements cannot be at once demanded; wherefore the following *standard of requirements* prerequisite to the practice of medicine is recommended:

1. As a preliminary a high school education or its equivalent, such as would admit to a recognized university. 2. Preliminary requirements to be passed on by a state official, such as the superintendent of public instruction, and not by an official of the medical college. 3. A medical training in a medical college—four years of not less than thirty weeks each year, with thirty hours of actual work per week. 4. Graduation from an approved medical college required to entitle the candidate to an examination before a state examining board. 5. The passing of a satisfactory examination before a state examining board.

Bone Cavities.—Moore (*Jour. A. M. A.*, Aug. 4, '06) has been using Moorhof's bone wax (iodoform, 20 parts; spermaceti, 40 parts; oil of sesame, 40 parts). This preparation, heated to 50° C., is poured into the cavity, where it immediately solidifies. It acts neither as a foreign body nor as a culture medium. Because of its physical properties it is gradually absorbed and replaced by granulations and finally by new bone. Moore has of late used the following: Spermaceti, 8 parts; olive oil, 2 parts; iodine, 1 per cent. This mass, which is solid at the body temperature, melts at 108° F., and is antiseptic without irritating. Technique is important in the preparation of the cavity and the after treatment; to faulty technique Moore ascribes much of the failure in the treatment of bone cavities. Thorough cleansing and washing with acid carbolic (95 per cent.) is essential, after which the cavity must be washed out with alcohol and then thoroughly dried. When the wax is hardened the tissues are closed and a dry gauze dressing applied. If necessary, especially when soft parts come in contact with the wax, drainage is advisable.

Melanotic nævus and melanotic cancer are closely related (Leredde and Mertial, *Le Progris Medical*, May 12, '06). The nævus returns the most easily of all growths after removal; and increases most in size from local irritation. There is great danger in these cases of melanotic infection of the lymph channels and even of the blood. Wherefore many physicians declare that a melanotic growth, no matter how small, should not be interefered with. Leredde and Mertial, on the contrary, believe their ablation to be safe if the incisions, both superficial and deep, are made outside the limits of the growth, without contact between the bistoury and the melanotic tissues. They would not attack a single small

spot which shows no tendency to increase in size; but as soon as it begins to augment it should be extirpated in the manner indicated. The operation must be done thoroughly, or decidedly not at all. Radiotherapy appears temporarily effectual; but seems ultimately to stimulate the growth into greater activity and to favor gland involvement.

Gallstone disease is primarily a hepatic affection, declares R. W. Wilcox (*Jour. A. M. A.*, Aug. 4, '06), and the congestions and inflammations of the portal system, the infectious catarrhal conditions of the bile ducts, and the faulty formation of bile in the liver, are the things that need attention. The affection is from this viewpoint purely medical. Spa treatment is advantageous in that habits and diet are thus well controlled; except for this consideration as good results can be obtained at home. The diet should be mixed; the meals limited in amount; frequent, to insure a constant flow of bile; with plenty of plain or feebly mineralized water at each meal. Alcohol should be prohibited. Exercise, especially out of doors, is important. Salicylic acid is preferable to the salicylates; the former is both a biliary and an intestinal antiseptic, which the latter are not. Of the bile acid salts sodium glycocholate (from ½ to 3 grains, as indicated) is the best. Phenolphthalein is also a good intestinal antiseptic. (℞ Acid sodium oleate, salicylic acid, aa gr.iss; phenolphthalein, gr. i; menthol, gr. ¼; ft. pil. No. 1—a good combination, allaying nausea, acting as an intestinal antiseptic and promoting peristalsis). Four to eight of these pills, with a glass of hot water twice daily, should be effective against the formation of gallstones. Painless elimination is best effected by means of amyl valerianate (15 m. in capsule) two hours before breakfast and after supper.

Carcinoma in Early Life.—C. S. Grulee reports a case (*Surgery, Gynecology and Obstetrics*, June, '06): A girl of sixteen, weak and anæmic, was constipated, with intermittent bloody stools and much abdominal pain. There was a mass in the left iliac region which might have been taken for impacted fæces. A local examination showed this mass to involve the wall of the rectum above the sphincter; and a bit of the tissue, upon examination, showed the tumor to be adenoclarcinoma. We are so accustomed to associate cancer with advanced life that such cases as the above should be borne in mind in making diagnoses.

Fresh air for mine workers seems to have been realized by a new respiratory apparatus called pneumatagen, with which the French Society of Mines has been experimenting at Courrieres. In every such apparatus three conditions must be fulfilled: exclusive communication of the respiratory organs with a reservoir of respirable gas; a light weight, together with sufficient reservoir capacity, to supply a man for a certain time; elimination of the expired carbonic acid which would otherwise poison the pure air. The pneumatogen, which seems to realize these conditions, is based upon Joubert's method of the renewal of vitiated air. It consists of an India rubber bag, worn in front, waist high, and secured to the miner's body by means of straps. He exhales into this bag by means of a mouthpiece the products of respiration, which are compelled to go through two tubes containing grains of "oxylith." This substance has the property of retaining steam and carbonic acid, while setting free a corresponding quantity of oxygen. The vitiated air is thus renewed when it becomes stored in the bag. With this apparatus, states *L'Illustration*, miners have been able to work in shafts continuously for more than two hours.

Tuberculosis in Children.—Squire (*Brit. Med. Jour.*, July 21, '06) finds this disease the most common and the most fatal in infancy and childhood. In infancy, whatever be the seat of primary infection, tuberculosis quickly becomes generalized; during these years the pulmonary form is almost always associated with lesions in other organs. In the first year of life the bronchial lymph glands and the lungs are most often affected. With the third year tuberculosis of bones, of the cervical lymphatics, the peritonæum and intestines becomes more frequent. After the second dentition (6-7 years) the pathological processes tend to resemble those of adults. Infection of the bronichal glands is a usual "half-way house" between the mucous membranes of the upper air passages and the invasion by the bacillus of the lung parenchyma. Squire believes that the alneoli are infected before the bronchial glands more frequently than is usually supposed. Other points of entry are the tonsils; the nasopharyngeal adenoid tissue; and the ear, especially when there is inflammation. Children are peculiarly susceptible to unhygienic conditions—overcrowding, dirt, neglect and improper food. Squire divides pulmonary consumption in children into the infantile and adult types. The former is in reality a miliary tuberculosis of the lungs and pleura. Tuberculous bronchopneumonia is also common in infants. In the adult type the base of the lung is more often primarily attacked. The signs are often first noted about the root of the lung in the mammary region, the disease having in such cases spread from a caseating bronchial gland. Cough is slight, or may be absent. Children under seven rarely expectorate; hæmoptysis and dyspnœa are uncommon. The physical signs are often very indefinite and the diagnosis correspondingly difficult. The X-ray may reveal consolidation not evident upon physical examination. Squire finds the use of tuberculin for diagnosis somewhat dangerous; and he has discontinued its use. The prognosis must be guarded; however, even in infancy recovery is frequent. The younger the child, the graver is the prognosis. Proper hygienic conditions are essential in treatment—outdoor life, good food in abundance, cleanliness, and sufficient rest and sleep. Children in whom the disease is not acute are better off for having some lessons; they had best not be kept in bed unless the fever and the weakness are extreme.

Copperhead snake bites are treated by Crum (*Jour. A. M. A.*, May 12, '06) by first freezing the area around the bite with ethyl chloride spray; then incising through the wound, making two parallel incisions an inch long through the two fang wounds; then soaking the parts for a few minutes with a strong permanganate solution and applying dressings wet with this solution. The edge of this dressing is raised every hour or half hour and fresh solution applied. The trifling incisions usually heal in a day in an area poisoned by snake bites such an incision heals with surprising rapidity, even when asepsis is not attempted. Crum is inclined to attribute some virtue to the ethyl chloride beyond the anæsthesia it causes. Under this treatment the patient is usually all right in two or three hours except for a trifling swelling. Internally a few doses of strychnine are appropriate, and also—in deference to the wishes of the laity—alcohol and ammonia. Crum believes the bites of small snakes to be more dangerous than those of larger ones.

Measles and Pertussis have each a higher mortality than scarlet fever, declares Caverly (*Am. Med.*). He therefore reprobates the fallacious belief which has obtained among physicians that as the two former are not dangerous diseases, and that as sooner or later every one will acquire them, it is useless to take prophylactic measures. It is time, observes the *New York Medical Journal*, that the profession should educate itself, as well as the public with regard to these matters, for until more enlightenment exists rational prophylaxis will present unsurmountable difficulties.

Syphilis of the Third Generation is comparatively rare. C. F. Marshall, however, relates a case (*The Lancet*). The grandmother had scars of multiple gummata about both knees. The mother had a gumma of the poplitral space and extensive destruction of the palate. Her first child had distinct saddle nose and frontal bosses. Marshall believes that reinfection of a hereditary syphilitic genitor increases the virulence of the disease and its fatal effect on the offspring—in which opinion he is, we think, at variance with modern theories concerning immunity.

The Origin of Tuberculosis in Infancy is discussed by A. Schlossmann (*Archiv. f. Kinderheil*, 1906, p. 99), who agrees with von Behring that most cases of infantile tuberculosis are due to an alimentary infection. The entire tract from the mouth to the anal opening, particularly the gastro-intestinal portion, may suffer invasion by the tubercle bacillus. Heredity infection is rare, although Schmorl, Geipel, and others have found bacilli in the placental vessels. Schlossman excludes ærogenous infection (inhalation) on account of his negative findings in the pulmonary alveoli and of the non-occurrence of primary tuberculosis of the larynx and larger bronchi in infants.

In displacement of the abdominal organs the neurotic element must be considered, with regard both to etiology and the symptoms (O. Lerch, *Med. Rec.*, Dec. 9, '05). Displacement may be congenital; or hereditary; or may be predisposed to by relaxation of the abdominal walls, such as often follows childbirth. Hysteria and neurasthenia are always present. The condition, indeed, "can only be developed on an inherited basis of neuropathic constitution. The symptoms attending displacement of the stomach, colon, kidneys, liver or uterus, are protean. Treatment should be prophylactic, by means of abdominal exercises and the use of a bandage. Lerch's bandage is provided with anterior and posterior pads and with leg straps. Diet adapted to the condition of the stomach and intended to replace the lost fat; rest; tonics; massage and mild hydrotherapeutic measures are appropriate. The advisability of operative procedures must be carefully considered, for often the visceral dislocation is but part of the trouble. The severity of the suffering does not depend on the degree of the dislocation; and correcting operations have oftentimes been without permanent result, or indeed without any result. Operation is distinctly indicated, however, if other measures have failed.

Opium in Heart Affections.—Musser (*Am. Jour. Med. Sc.*, Jan., '06) finds this drug a tonic in heart debility. The flagging heart of shock induced by pain or other depressive factors can be restored by morphine, which is also valuable in the heart failure of myocarditis. It can be given to prevent angina pectoris and thus defer the dreadful asystole. The deodorized tincture of opium, given for months in small doses reduces waste, lessens the peripheral sensations which fret an irritable heart, calms the nervous system and makes necessary less food, with a corresponding improvement of digestion, metabolism and elimination. In cases of weak heart, after exhausting diseases following prolonged mental and physical pain and without structural valvular or muscular lesion oplum is advantageous; it may be useful in failing compensation with irritability and nervousness; small doses given over a prolonged period may relieve or prevent the dyspnoea of myocarditis.

A Time for Study and a Time for Sleep.—The new-born infant must sleep about twenty-two hours; and this amount is so slowly lessened that at twelve years the child still requires twelve hours. Ten hours should be given to sleep until about the eighteenth year; and nine hours may be required until well along in years. *American Medicine* declares it to be nothing short of criminal to let boys of 14 sit up until 10 o'clock, and then rout them out at six. Lower animals can be killed quickly by depriving them of sleep; the boy is not killed, but he is perhaps so exhausted that he loses resistance to disease. Medical students often make the same mistake, forgetting that a tired brain never absorbs anything. Those students who retire in time to sleep at least nine hours, get far more out of their course than the "grinds." Some of the best men habitually take ten hours. "The whole subject, though very old, is so new to the laymen who do the damage to school boys, particularly in boarding-schools, that there is urgent need of wider publicity and much discussion for enlightenment." Proper consideration should prevent the exhaustions which so frequently follow school courses. Mothers should be taught that it is harmful to arouse children at any age—they should awaken in the morning naturally. If they are not in time for school they do not retire early enough. "If they are sleepy heads it is either the fault of the parent or the result of ocular defects."

Diagnostic Significance of Decidual Tissue.—Graves (*Bost. Med. and Surg. Jour.*, July, '06) concludes that the passage of a decidual membrane in a patient with symptoms of pregnancy and with a mass on one side, together with a history of flowing, is very significant of an extrauterine pregnancy. Cases, however, do occur in which such is not the case, even with these indications. An ordinary miscarriage may be preceded by the exfoliation of a part or the whole of the decidua vera. The pathologist may not be able to differentiate an exfoliated dysmenorrheic membrane and the decidua of an extrauterine pregnancy. An accurate history of the patient is essential to correct diagnosis.

Sleeplessness, such as is not an incident of disease, but which is the chief if not the only symptom complained of by patients, is considered by Broadbent (*The Practitioner*, July, '06). Chloral is indicated for this condition, when it is due to heightened blood pressure. When due to very low blood pressure a cold bath, or tepid or cold sponging is effective; here a cardiovascular tonic is the best remedy, although a teacupful of strong hot beef tea will induce sleep at once. Beef tea is better than milk, since it gives the stomach less work. To begin with the digestion must be investigated; and any derangement must be rectified. If there be gastro-intestinal fermentation, appropriate antiseptics (salol and the sulphocarbolates) may be given. In old age the opiates are preferable to the chloral group. Compound tincture of camphor (♏ i-ii), a grain of opium, with sufficient calo-

cynth and hyoscyamus to prevent constipation. In the young sulfonal, trional, veronal, opium and the like are absolutely contraindicated; here chloral or paraldehyd are preferable.

The Harvard Medical School, the dedication of which we have noticed editorially, consists of an administration building and four large laboratories, two on either side of the quadrangle. All are connected by one-story corridors, underneath which are basement tunnels that run all around from building to building and connect with a tunnel from the power house, through which the heating apparatus, electric wires, cold storage and compressed air pipes, and ventilating apparatus enter the main group. The administration building is most imposing, and differs in its inside arrangements from the other buildings, which are the workshops of the plant. One enters upon a large hallway, planned in architectural conformity to the exterior. A marble stairway leads to the upper stories. On the north side are faculty and administration rooms; on the south side are reading, smoking and other rooms for the use of students and alumni on the ground floor. Over these is an ampitheatre, which is connected with a lecture preparation room, communicating by means of an elevator with the Warren museum above so that specimens may be brought directly to the lecture-room on movable tables. A corridor leads from this building to the anatomy and histology building, which contains also the department of operative surgery and comparative anatomy. Following the general plan of the laboratory building the central portion is here taken up by an amphitheatre and a library used in common by all the departments in the building. Next, on the same side, comes the bacteriology and pathology building, in which are a large number of rooms for special research work, rooms for photographing specimens, and storage and dissecting rooms. On the opposite side of the quadrangle, nearer the administration building, is that devoted to physiology and chemistry. Next is the hygiene and pharmacology building, with a portion devoted to research work in surgery. The wings of each of the four laboratory buildings are separated in the rear for about two-thirds of the distance, thus giving ample light on all sides. As the growth of the school requires, each wing may be lengthened by a unit of piers and windows, and when extended to a distance of 216 feet may be connected together in the rear, inclosing in each case a court 112 feet long and 70 feet wide. This would treble the capacity of the laboratories without interfering with the light or architectural design.

The benefaction of J. Pierpont Morgan ($1,185,000) supplied the means for the erection of the administration and physiology buildings; and very appropriately are tablets inscribed "In memory of Junius Spencer Morgan, a native of Massachusetts, a merchant of Boston, afterward a merchant of London. Born April 14, 1813. Died April 8, 1890." On a tablet outside the appropriate building is inscribed: "Collis P. Huntington Memorial Laboratories for instruction and research in pathology and bacteriology. Erected through the munificence of Arabella B. Huntington." On the hygiene and pharmacology building is a blank tablet which will eventually bear a memorial inscription to John D. Rockefeller, who gave $1,000,000 to the building fund.

Telephone terrors are noted by the *Municipal Journal and Engineer.* Wherever a booth is provided there is very little done in the way of cleaning or ventilating it. The exhalations of the preceding occupant do not escape, and the client who follows him suffers from them, and adds to them his own. During speech minute particles of saliva are expelled, containing a great variety of germs. The mouthpiece of the instrument is thus a very efficient catch-basin for many undesirable products. It is urged that our health authorities (they are appealed to for everything) should require that the door of a booth be kept open by a suitable contrivance when the 'phone is not in use, and that the mouthpiece should frequently be cleansed and rendered aseptic.

In tabes, as in general paralysis, declares Ferrier (*Brit. Med. Jour.,* Apr. 7, '06), there is a marked lymphocytosis of the cerebro-spinal fluid; upon this fact one may establish a diagnosis of general paralysis before any marked physical signs of the disease are manifested. Ferrier believes in the essential pathological identity of tabes and general paralysis, and that, although the affections are not the same clinically, the morbid process underlying both is identical. The primary lesion in both is a dystrophy of the neurons and their connections, the sclerosis of membranes and blood vessels being only a secondary result of the parenchymatous degeneration.

Prescribing by Telephone.—The *National Druggist* relates how an order was telephoned by a St. Louis physician to give a patient one-eighth of a grain of morphine at bedtime. The message was received by the druggist's son, a lad of fourteen years who knew nothing of pharmacy and who misunderstood the message. In the father's absence the son prepared an overdose of the drug, from which the patient died. The coroner's jury held the doctor, the druggist, and the boy responsible for the death. Unquestionably, the greatest care should be exercised in sending prescriptions over the 'phone, unless they are restricted to some simple and harmless ingredient. And the *National Druggist* rightly urges all druggists to refuse to compound important prescriptions unless it be with a definite understanding that the risk is assumed by those for whom the prescription is destined. Any message given over the 'phone by the physician should be repeated to him by the druggist.

Complete Inversion of the Uterus.—Emans reports a case (*Med. Rec.,* May 19, '06): Prior to the pregnancy the patient had worked in a tobacco factory, and also as an ironer in a laundry. Five days before delivery there was some vaginal hemorrhage which was accompanied by irregular pains and finally by a chill, which led to delivery by forceps. A good deal of force was used. The placenta was delivered by traction on the cord and by abdominal massage of the uterus. It was stated that the uterus prolapsed soon after the delivery, but was replaced by the attending physician. The bowels were constipated after labor; for this castor oil was given. The fifth day after labor, while straining at stool, the uterus prolapsed, being completely inverted. With some difficulty the uterus was replaced in the vagina, but still inverted. Sixteen days after the confinement the patient was etherized and the uterus replaced. This condition occurs once in about 200,000 confinements.

MISCELLANY

Oil of citronella, the *Sun* aptly observes, is the best ammunition that can be sent to the American troops in Cuba, for the mosquito is much more dangerous than the native bandit.

The mortality in infants under the first year is 40 per cent. in Moscow. In London the percentage is 24.5. In every "civilized" community the infant death rate is shockingly high.

Ninety per cent. of defective teeth were found among the school children at Hochheide in Germany. Only 35 in 1,020 children had sound sets of teeth, and in 396 of these children a poor bodily condition was attributed directly to this cause.

Male and Female Brains.—Dr. Scofield, of London, observed in a recent lecture: "Women are just beginning their race; men have pretty well finished theirs." He found woman's brain to be slightly greater in proportion. There are essential differences, however, making anything in the nature of rivalry absurd. Women's minds are much better for some kinds of work, and men's for other kinds.

Dessicated buttermilk is recommended by Baginsky, who has devised a preparation which he claims to be useful in the feeding of children affected with intestinal disorders. The buttermilk (which is in itself an excellent food when given in fermentative conditions) is evaporated, and the resultant mass is reduced to a fine powder. This is mixed with two parts of water and is used the same as fresh buttermilk, being given frequently and in small doses.

There are 228,234 doctors in the world, declares *L'Illustration*. 162,333 are distributed over Europe, as follows: In England, 34,967; Germany, 22,518; Russia, 21,489; France, 20,348; Italy, 18,245. The proportion of physicians is: In England 78 to 100,000 of the population; France, 51; Turkey, 18. With regard to cities: In Brussels the proportion is 241 to 100,000 of the population; Madrid, 209; Budapest, 198; Christiana, 181; Vienna, 140; Berlin, 132; London, 128; Athens, 123; Paris, 111; New York, 74; Constantinople, 35.

Colds are contagious, declares Dr. Frederick Treves. The common cold is of bacterial nature; it can be conveyed from person to person. "The germ would seem to linger in the haunts of men and to find pleasure in the madding crowd." Fishermen returning to port after a two months' voyage, during which they were free of disease, were very prone to catch cold. "The chilly blasts of the North Sea in the winter were unpleasant enough; but they were not laden with the cold-in-the-head bacillus, while the air of the cosy seaport was."

In neuralgia, degeneration of the peripheral nerve is frequent, if not constant, states Gordon (*N. Y. Med. Jour.*, July 21, '06). This nerve degeneration is very probably a primary condition, which, as a neuritis, assumes an ascending course and involves secondarily the Gasserian ganglion. The blood vessels probably have a part in the causation of this degeneration. It is difficult, if not impossible, to draw a sharp distinction between neuritis and neuralgia; in the latter as in the former there seems to be an anatomical basis. It is therefore important to remove surgically a nerve affected with so called neuralgia, as soon as may be after a short trial of medical treatment.

A society against quacks and adulterated food is to be formed, so it is stated, on November 15 in the Hudson Theatre in New York City. Some twenty religious, medical and scientific organizations, among which are the National Association for the Study and Prevention of Tuberculosis, support this project and will send delegates to the meeting. It is announced that the society will obtain and disseminate accurate information concerning practices and conditions of every kind that are dangerous to the public health and morals; and will endeavor to prevent quackery, criminal practices in the healing art, adulteration of drugs and the sale of narcotics and alcohol under the guise of proprietary medicines.

Radium to the value of a million kronen (more than $200,000) was abstracted, after searching tests and experiments in the laboratories of the Vienna Imperial Academy of Science, from some fifty tons of uranium earth. This dirt was taken from the state mines in Joachimsthal, Bohemia. The products will, however, not be sold, but will be kept by the Academy for further scientific research. The Bohemian ministry of agriculture, besides building its own laboratories for the production of radium salts, proposes also to exploit their healing properties by establishing a health resort in Joachimsthal and using the springs in the mines there for curative purposes, both in baths and for drinking.

The sale of absinthe has been forbidden in the Swiss canton of Vaud; and this is good temperance reform. No doubt the other cantons will fall in line. This drug induces not only the ordinary alcoholic craving, but also a habit peculiarly disastrous to the brain. The Swiss, however, show themselves a canny folk in manufacturing the stuff for those who don't know better than to use it, but forbidding their own citizens to touch it. Very much the same game as this has been played by the highly moral English, who reprehend the use of opium in the tight little island, while making great revenues by its sale in China, among whose people the English originally by force of arms introduced the drug.

When liquid air was first commercially produced several years ago many untenable claims were made as to its practical application. One of the most valuable uses to which it has been put is that of the subsequent separation of the oxygen and nitrogen by fractional distillation and rectification. It has proved of much value in the study of the behavior of various metals at low temperatures. It is, for instance, generally assumed, states *The Forum*, that at very low temperatures metals become brittle and even fragile; in numerous cases the breaking of steel rails in winter weather has been attributed to this cause. By the use of a bath of liquid air it has been found practicable to test various metals and alloys at as low as —180° C.; and this has led to the discovery that while many steels have their tensile strength increased, their ductility lowered and their brittleness raised at low temperatures, this is not always the case. This much heralded liquid is becoming useful in many ways not considered by its original exploiters, and will no doubt find many increasing applications.

THE SEX CYCLE OF THE GERM PLASM.

Its Relation to Sex Determination.

BY THOMAS E. REED, M.D.

PART IV.

A NUMBER of years ago in a small volume, now out of print, this theory of the determination of sex was briefly outlined.* We called attention at that time to the importance of taking into account, in considering this question, the general periodicity of functional change throughout the organic world. We believe that sex is not so much a morphological as it is a physiological distinction. Theorists have devoted too much attention to structure and not enough to function. Now we know that in all organic life one may note through long continued and close observation, progressive change. This change is both structural and functional. It is progressive, but in any one direction it is not constant. There is a fluctuation backward and forward, a swinging of the pendlum from one side to the other of a mean, or a movement forward and a rest. For a structural change in a living organism to take place there must be a preceding functional change. This functional change in all probability arising from a structural change in some more basic tissue and so on back. It is thus impractical to attempt to disassociate structure and function. As we approach the simple cell they probably synchronize. At first thought or to the average man the morphological distinction between the sexes is the real distinction, but what we wish to call attention to is the underlying and essential distinction. We are not dealing in the obvious.

Of structure and function we may say that function is in general the most susceptible to variation. Its variation is at once the most dependent upon, and in some respects, the most independent of environment. There are some hereditary rythms of function in all life cells whether simply or complexly arranged, that seem to bear like the germ plasm, a charmed existence so that nothing short of the destruction of the organism itself suffices to break their continuity.

In the first part of this paper a number of reasons were given for holding the view, that the germ plasm is primarily hermaphroditic, containing all the elements of both sexes, that this condition is not lost even in the developed organisms; that morphological sex distinction is the result merely of a tendency on the part of the developing organism to functionate more actively in one direction than another; and that this tendency is conferred upon it at the moment of fertilization by the spermatozoon.

Now knowing that all functional activity displays a strong tendency to periodically fluctuate first to one and then the other side of a mean, it would be unreasonable to suppose that the germ plasm does not follow this universal law, or that it occupies a position of fixed equilibrium between male and female tendencies. On the contrary there is every reason for believing that the germ plasm is in a state of constant fluctuation from one sex extreme to the other. Structurally possessing the elements of both sexes, the ovum undoubtedly at one time by a slight functional change is actively female, but soon by an equal and opposite reaction functions as male. Attention has already been called to the very suggestive fact that this is actually what does occur in some hermaphroditic animals, in some, where the sex organs are the same, or in others where the same individual possesses both sets of organs the sperms and ova are secreted alternately as in the group streptoneura of the snails, and in oysters and clams. In regard to this fact Geddes and Thompson say: "If the hermaphroditism be very intimate, that is if the seats of ovum and sperm production be very close to one another it is not to be expected that the development of two kinds of cells will go on simultaneously. Such, indeed, would be a physiological impossibility. Antagonistic protoplasmic rythms may rapidly alternate, but cannot coexist. Whether hermaphroditism be anatomically intimate or not there is throughout a tendency toward periodicity in the production of male and female elements."*

What could be more intimate than the hermaphroditism of the germ plasm of the ovum; and hence is it unreasonable to suppose that there must necessarily be a sex rythm in the germ plasm just as there is in other primitive hermaphroditic organisms? At the same time does it not seem vain for man to think that he may some day succeed in altering this hemaphroditic character of the germ plasm, basic as it is, conferring upon it a male or female sexuality, by some system of altering the nutritition or otherwise exciting variations in the parent organisms? As Weismann and his followers have long insisted, the germ plasm leads a charmed existence. We may destroy it, but we cannot change its structure or modify the interplay of forces within it.

It has been shown that sex is determined at the fertilization of the ovum. If we then admit this sex cycle of the germ plasm we must admit that the future sex of the embryo depends upon whether fertilization takes place during the male or female period of the cycle. One thing we believe to be certain: if the determination of sex does not depend upon the time of fertilization or union between the sexes, it is as hopeless for man to think of controlling it as it would be for him to think of changing the orbits of the planets.

Since we cannot disturb this rythm of the germ plasm the only method of determining the sex of the embryo is to take advantage of it. We believe that a period of approximately twelve hours is occupied by the germ plasm in making one complete revolution from the beginning of the female variation through the male and back again to the female, each sex manifestation thus occupying a period of six hours. These periods constitute two phases of the complete cycle. They may approximately be designated the katabolic and the anabolic, from their probable embodiment of the great katabolic and anabolic distinction between the sexes in general, or the active and passive as typifying the distinction in activity between the two sexes, which can be traced with more or less facility in all bisexual organisms, or they may be termed positive and negative as representing the positive character of the male and negative character of the female.

Is this active character of male and passive character of female organisms a real or only an apparent distinction? We believe that it is a real one and a very basic one at that, having in all probability given rise to distinctions which are now more obvious. It is at least a phase of sex that has attracted the attention of biologists to a greater or less degree for some time. Thompson, in his *Zoology*, calls attention to it, and later, in conjunction with Professor Geddes, in *The Evolution*

*Cyclic Law. T. E. Reed, 1897.

*Evolution of Sex, Chap. VI.

of Sex, dwells upon it at greater length. Thompson says in this respect: "Most animals are either males or females, the former liberating actively motile elements or spermatozoa and the other forming and usually liberating passive egg cells or ova."

Any one who has had the opportunity of observing the products of the male and female organism beneath the microscope needs no long description to emphasize this marked difference in activity. This writer further says: "All through the animal series from active infusorians to passive gregarines, from feverish birds to the more sluggish reptiles we read antithesis between activity and passivity, between the lavish expenditure of energy and the habit of storing. The ratio between disruptive (katabolic) processes and constructive (anabolic) processes varies from type to type. We believe the contrast between the sexes is another expression of this fundamental alternative of variation."* In Chapter II. of *The Evolution of Sex* many instances illustrating this important fact of the inherent activity of the male and passivity of the female are cited. They say: "The female cochineal insect ladened with reserve products of the well-known pigment spends much of its life like a mere quiescent gall upon the cactus plant. The male on the other hand in his adult state is agile, restless and short lived. Now this is no mere curiosity of the etomologist, but in reality a vivid emblem of what is an average truth throughout the world of animals—the preponderating passivity of the females and the predominent activity of the males. These coccus insects are martyrs of their respective sexes." In the fourth chapter of this same work where the question of the determination of sex is discussed this view is again emphasized. They continue "such conditions as deficient or abnormal food, high temperature, deficient light, moisture and the like are obviously such as would tend to induce a preponderance of waste over repair, a katabolic habit of body, and these conditions tend to result in the reproduction of males. Similarily the opposed set of factors such as abundant and rich nutrition, abundant light and moisture favor a constructive—*i.e.*, make for an anabolic habit of body and these conditions result in the production of females. This is not all, however. The above conclusion is indeed valuable, but it acquires a deeper significance when we take it in connection with the result of the previous chapter. There it was seen as the conclusion of an independent induction that males were of smaller size, more active habit, higher temperature, shorter life, etc., and that the females were larger, more passive, vegatative, and conservative forms.* Theories of inherent maleness or femaleness where rejected since practically nearly verbal: more accurately, however, they have been interpreted and replaced by a more material conception which finds the bias of the whole life, the resultant total activities to be predominence of the protoplasmic processes, either on the side of disruption or construction. This conclusion has still to receive cumulative proof, but one large piece of evidence is forthcoming, that namely of the present chapter. If influences favoring katabolism make for the production of males and if anabolic conditions favor females, then we are strengthened in our previous conclusion that the male is the outcome of predominent katabolism and the female of equally emphatic anabolism." It will be seen from this above quotation that these authors incline to the view that sex can be influenced by the nutrition of the parent organism. We have shown that at least as far as the higher animals are concerned this view is to be discredited. It is desirable that attention be more particularly directed to the rejection by them of all theories of "inherent maleness, or femaleness," and their advocacy of the view upon which this theory to a degree depends and with which we have attempted to impress the reader, namely that maleness is the outcome of katabolism and femaleness of anabolism, or as we have summed it up the essential distinction between the sexes is functional rather than morphological. This being the case, we should suppose that the sex cycle of the germ plasm might resemble in some way, or present an analogy to the anabolic and katabolic cycle which is constantly present in multicellular organisms. This is undoubtedly what really does occur and it is plainly unnecessary to postulate some mysterious interplay of cellular forces, when we have at hand this cycle of metabolism so plainly manifested in all animal life from the simple cell up to man himself; and especially when it has been shown that these conditions of anabolism and katabolism, passivity and activity, are so extremely typical of the sexes. The sex of the embryo is determined simply by the period through which the germ plasm happens to be passing when fertilization takes place. If it is katabolic the embryo is male and in common with the rest of the sex the developed organism exhibits katabolic qualities; if the ovum is passing through an anabolic stage the opposite sex is the result.

As explanation of why a period of twelve hours is taken as the length of this metabolic cycle of the germ plasm is now in order. We have already spoken of the general functional periodicity which can be observed in nearly all animal life. As long ago as 1843 Dr. Laycock in an article in the *Lancet*, after citing a number of examples of vital periodicity, comes to these conclusions: He held that there is a general law of periodicity regulating the vital movements in animals; that the approximate periods within which these movements took place could be calculated; and that this unit must be considered one day of twelve hours. He believed further that the lesser periods were simple and compound multiples of this unit in a numerical ratio analogous to that observed in chemical compounds and that the fundamental unit of the greater period was one week of seven twelve-hour days, equal to one-half of a calendar week. While these assertions are rather dogmatic it would seem that in so far as this period of twelve hours and seven half days are simple divisions of the month they are important. Taking the mean lunar month of twenty-eight days and dividing it, we have as important periods the two weeks or fourteen day period, one week, three and a half days or seven twelve hour periods, and finally the shortest cycle of twelve hours. The longest cycle or one month corresponds to one revolution of the moon, from the perigee to apogee and back to perigee, or a complete cycle of spring and neap tides, while the twelve hour cycle represents one complete ordinary tide cycle corresponding to the upper and lower transit of the moon. Whatever we may assign as the cause, it does seem that many vital phenomena fluctuate in an approximate correspondence with

*J. Arthur Thompson—*Outlines of Zoology*, Chap. IV.

*In the course of the article on "Sex," *Encyclopedia Brittanica*, Thompson explains menstruation as the "means of getting rid of an anabolic surplus in the absence of its fœtal consumption."

the above designated periods.

For a number of generations it has been noticed that infectious fevers present certain periodic fluctuations. We have been in the habit of noting these periodic changes in many forms of acute disease. In some it seems to be more easily recognized than in others. The ones where it is the most easily observed are those which depend upon a bacterial infection. In very acute diseases we have noted that the termination of a full week generally brings a critical day. A distinct change usually occurs either for better or worse at that time. To a lesser degree this is true of the end of the three and a half day period. Convalescence is often established at the end of the first or second week, or when death takes place it is more likely to occur on the seventh, fourteenth, or twenty-first day, or perhaps the fourth, eleventh, or eighteenth and so on. These changes in the character of the symptom complex are not perhaps so noticeable to the general practitioner, as they would be were all diseases allowed to run their natural course. The day of twenty-four hours is the pathological period most generally observed by physicians. Some disease symptoms do seem to be regularly aggravated or lessened at certain times of the solar day, but we believe this to be due to some daily regulation in the habits of the patient, rather than to any other influence. We believe that a gain would result from the adoption of the twelve hour cycle, as the shortest pathological period, then three and a half days, seven days, two weeks, and one month.

The incubation of the infectious and contagious diseases seems to vary considerably since the resistance of the patient may be so great as to prolong it over what would be its usual period, but we find that on an average it is limited to these periods; that is, three and a half days, seven days, ten and a half days, and two weeks.

Menstruation probably depends upon the lunar month. Dr. C. A. L. Reed says of this function: "It may be that the function of mensturation will disappear in the course of years, but in its waning recurrences it will still be cyclical in its manifestations. It is a law of life and of all activity.

The respiratory movements are rhythmic and by a deeper breath at every seventh respiration we graft rhythm upon rhythm. There is a recurrence of hunger and thirst and a propensity to sleep, which is not in exact correspondence with the needs of the organism. In healthy persons of both sexes there is a diurnal tide in the pulse rate, the respiration, the arterial tension, and the temperature. More than one observer has come close to a demonstration of that which is inherently probable, a tidal movement in the adult male of the human species, during which all vital processes and the sexual appetite reach a climax and then decline: so that the question has been seriously raised whether it is not true that men menstruate as well as women; and if we take the next step from the physiological to the pathological we find the same inexorable law of rhythm in the periodical recurrence of malarial paroxysms which the discovery of the plasmodium has not fully explained, of epileptic seizures, of maniacal crises, and in the characteristic fever curve of the infectious diseases. Even in the highest intellectual activity we find the same law for the creative power of genius has its ebb and flow."*

*A Text Book of Gynecology. C. A. L. Reed.

Havelock Ellis has called attention to the possibility of the existence of a rudimentary menstrual cycle in man."†

As menstruation corresponds to an increase of activity in the organs of generation in the female, should there be such a cycle in the male, it would probably be represented as suggested above, by an increase of sexual desire. Now this corresponds closely to the facts. There is in man such a monthly cycle, but upon this is grafted lesser cycles of one week, and three and a half days' duration. Menstruation in woman occurs on an average every twenty-eight days; should there be a delay it is usually three and one-half days or one week in duration. The average duration of the flow is three and one-half days.

This dependence of many phenomena of animal life on the month is very marked. The average time occupied in hatching the eggs of many species of insects is three and one-half days. In some insects the period is one week and a half, as for example, the black caterpillar. Others require from two to six weeks. The larvæ period of the bumble bee is exactly seven days, the moth six weeks, and the common black caterpillar six weeks. The wood piercer bee is in the larvæ state four weeks. The hen lays eggs for three weeks and sets on them three more.* The goose lays for two weeks but sets four. The pigeon sets for two weeks after having laid eggs two weeks. The period of incubation for the ostrich egg is exactly six weeks after four weeks of laying. In the higher mammals there are so many conditions which may retard or hasten birth that the period of gestation is not very accurately determined. Where it is, we generally find it limited by a definite number of months or weeks. Dr. Laycock in one hundred and twenty-nine species of birds and animals found only four exceptions to this rule, while sixty-seven were rigidly exact. This periodicity which we find to be so intimately connected with the month, and running in periods evenly divisible by the twelve hour period, which we know constitutes one complete tide cycle, was noted by Charles Darwin. A hint is let fall in *The Descent of Man* that is pregnant with suggestion. He says: "All vital functions tend to run their course in fixed and recurrent periods and in tidal animals the periods would probably be lunar, for such animals must have been left dry or covered deep with water, supplied with copious food or stinted during endless generations at regular lunar intervals. If then the vertebrata are descended from an animal allied to the existing tidal ascidians the mysterious fact that with the higher and now terrestrial verterbrata many normal and abnormal vital processes run their course according to lunar periods, is rendered intelligible. A recurrent period, if approximately of the right duration when once gained would not, as far as we can judge, be liable to be changed, consequently it might thus be transmitted to almost any number of generations. This conclusion, if it could be proved sound, would be curious, for we

†Man and Woman, Chap. II. Havelock Ellis. Scribner's Contemporary Science Series.

*Albini found that hens after separation from the cock for the first week laid nothing but fertile eggs, but on the ninth and tenth days both fertile and infertile eggs were laid. On the twelfth day all the eggs were infertile, but fertile eggs would again show and were laid even as late as the eighteenth day. From which we gather that the days having the highest average of fertility were approximately the seventh and fourteenth.

could then see that the period of gestation in each mammal and the hatching of birds' eggs and many other vital processes still betrayed the primordial birthplace of these animals."*

If we assume with Darwin that the vertebrata are descended from some tidal animal, which, as he says, must have been subjected for many millions of generations to such marked alterations in its environment as a complete immersion in sea water followed by a complete exposure to the air and sunlight in periods six hours in length, synchronizing perfectly with the incoming and outgoing tide, we must admit the possibility of the rhythm then established, being maintained by heredity through as many more generations of cells even though they may not be subject to the same conditions as the ancestral cell. That it is still maintained in the germ plasm should seem all the more plausible when it is remembered that many functions and vital phenomena of the fully developed organism still display this tendency, as has been shown, to run their courses in more or less definite lunar intervals. It is generally believed by evolutionists that the beginnings of life on this earth were first manifested in sea water: but there must have been a period when in the migration of life from sea to land these animals inhabited for countless millions of generations the tide ways and shore, for it is inconceivable that any species could survive the sudden change from water to land. Now what effect would this alternate immersion and drying in these tideways have? Would it not produce on these primitive cells alternate active and passive, or anabolic and katabolic effects, states which we see perpetuated in the two sexes even to this day? Flood tide would be a period of activity, of seeking for food, of excretion, of ingestion, of avoiding enemies, of darting here and there, or in earlier times, perhaps as we see the simple cell to-day, floating in the water and rejecting or seizing and assilitating different bits of food which may happen to drift in its direction. On the other, the ebb tide marked a period of passiveness or anabolism, gorged with food which is now building up the organism, immobile and passive, the primitive cell rests upon the surface of the sands or vast marshy tracts of land, very much as Prof. Thompson describes the female cochineal insect as resting passive, sluggish and immovable upon the cactus plant.

Could any conditions be imagined which would create in the cell periodic cycles, typifing more vividly the states which biologists have found to constitute the essential distinction between the sexes?

A CONSIDERATION OF THE NERVOUS SYSTEM.

BY F. B. BRUBAKER, M.D.

PART II.

HAVING proceeded thus far with a rather lengthy argument as it pertains largely to an examination into the conditions upon which the life of individuals relative to the vegetable kingdom belongs, let me now ask the question, why it is that a mule can be taken into a coal mine and kept there far removed from the direct rays of the sun for a period of years, and no member of the vegetable kingdom can possibly be kept under like circumstances, search as we may the world over? The reason is, because the mule possesses a nervous system.

*Descent of Man, Chap. V.

In the Medulla Oblongata there exists nerve cells which exert a constant influence over the activity of vascular muscles. These groups of nerve cells which compose the vascular nerve centres may be divided into motor and inhibitory. From these centres emanate impulses of two kinds, the one increasing the action of the contractile elements, and the other diminishing it. They are intimately connected with the centres which preside over the functional activity of various viscera, and are also closely related to the nerves coming from all parts of the circulatory apparatus. Direct communication between these vaso-motor and vaso-inhibitory centres and the blood vessels is kept up by means of efferent nerve channels, some bearing stimulating (vaso-constrictor) and others inhibitory (vaso-dilator) impulses. The activity of the contractile elements may be altered by influences from different sources. Central influences from the medulla are habitually in action affecting all the vessels and keeping up the vascular tone. These impulses are variously modified by changes occurring in distant parts of the circulatory apparatus and can be regarded as a general regulating mechanism. They pass through the sympathetic chain. Special influences which are associated with the functions of the different parts and organs are only called into operation during the performance of the function whatever it may be. These impulses are undoubtedly conveyed by the same nerves that excite the various forms of functional activity. Section of a sensory nerve causing temporary vaso-motor paralysis owing to the tonic constrictor influence being cut off. Stimulation of the peripheral stump causes vaso-constriction from excitation of the fibres bearing these impulses. The stimulation of a motor nerve causes an increase in the flow of blood through the muscle, *i. e.*, is associated with a vaso-dilator effect probably dependent on the inhibitant influence of certain efferent fibres which check the local vascular agencies. Thus we must suppose that there exist local agents under the control of the medullary centres and that there are distinct sets of efferent, exciting and inhibitory fibres, passing between the centre and periphery. One set of the same lies in the ordinary functional nerve of the part, and the other lies in the sympathetic which runs along the vessels themselves and forms intricate networks, but so far as we know there are no local agents other than the muscles in the wall of the vessels and impulses from the centres which can stimulate or inhibit the activity of the local agents, travel by different fibres, and all the observed phenomena can be explained even without supposing local nerve centres to exist.

If, now, we should return to our illustration that an adult mule can be taken under ground, far removed from the direct influence of the sun's rays, and live and work in the same situation for a period of ten years, let us say, and that no member of the vegetable kingdom can possibly survive under similar circumstances, and if we will remember that in our former illustration of protoplasm in which we found that there exists no material difference between that of vegetable and that of animal life, and, further, that the external conditions of light, heat, water, etc., which becomes ultimately internal and a part of the life power of protoplasm itself, we naturally ask the question, and just as naturally reply, that the mule by possessing a nervous system and also by reason of its food, which,

by conisting of organic matter, is nothing more than stores of suns rays, these, I say, by being liberated under ground in the mule's stomach, and their distribution being attended to as well as their liberation by reason of the mule's nervous system, so far also differs in no material way from what the plant above ground, growing, let us say, at the very mouth of the mine, receives in a direct manner from the sun. So that whether we look to the vegetable, or, on the other hand, whether we observe the animal, we find that the liberation of heat by the metabolism of the protoplasm of the cell and in the presence of water, which is carried to the mule, but which the plant derives from the soil together with the nutritive principles which in the one case is taken direct from the soil and is inorganic, and in the other is liberated in the stomach of the mule and is immediately organic, and in each case carried by the circulation of water laden with these distinctive food principles to the protoplasm of the cell. In the case of the vegetable, therefore, whatever molests or interferes with the regular and constant continuance of these very principles produces the death of the individual. It matters little whether it be light, or heat, or water, or insufficient food as it is found in potash, nitrogen, iron, etc., which constitutes the plant foods. Neither, on the other hand, do I care whether this interference is from lack of sun rays, or lack of food in the soil, or produced by parasites, it is always constant, it is the same, it is final. If a plant rooted in favorable soil is surrounded with proper light and heat conditions; and, if by reason of the rain, sufficient water is regularly showered upon it, and it be free from parasites, it lives, if not, it dies. The action is always upon the protoplasm of the cell, *the living cell* because the heart of a tree which is only dead cells, so to speak, may be eaten away and the tree still live and bear fruit, but when living cells are attacked and sufficient protoplasm destroyed or an interference with any of the above processess takes place, the tree dies. But for the mule it is different. While an interference with these very processes as for the plant will cause the death of the mule, only in a different manner, of course, by reason of which the necessary conditions are somewhat changed, yet starvation for the mule is no less death for it, than starvation for the plant by lack of potash or what not.

But we have seen in the preceding pages that it is on account of a nervous system that animals, and especially man, towards whom our study now directs itself, being the highest type, and most interesting of animal structure, is placed forever over and bevond the highest order of plants. An examination of the constituent substance, Protoplasm, is found not to differ in any material respect the one from the other, and certain necessary conditions having been found which in the ultimate are the same, the one for the other, it becomes even more obvious, that it is undoubtedly by reason of a nervous system that the animal is raised above the entire vegetable kingdom, and with this view firmly fixed within our minds, let us approach to an examination of the conditions necessary to the death of the mule, or to the death of man, if you please, starvation being shown to be death as we always find it in plants (a type), and the highest cause therefore.

If you will turn with me to Green's Pathology, and to page 121, we will read, "John Hunter transplanted a cockspur into its comb and it has long been known that small pieces of the body, like the tip of the nose, or finger, might unite if fixed in position soon after complete separation from the body, but accurate knowledge has been attained only since Reverdin's discovery of skin grafting." *"The tissues, as is well known, do not die when the body, as a whole, does."*

Let me ask you, my reader, that if the tissues, and by that is meant PROTOPLASM, do not die when the body, as a whole, does, what does die?

Does not the nervous system die, and is this not what is observed?

Let us now turn our attention to disease and we shall find that each and every disease begins as a local one, or at least by local manifestation. Any change in external conditions acting upon a unicellular organism would undoubtedly affect every particle of its substance and modify all its functions, all its diseases would, therefore, be general. But multiplication of cells and specialization of function, enable normal conditions to act upon certain groups of cells, and to disturb their functions without disturbing primarily those of other groups. We thus get local dsease. It matters not what its origin, whether by means of a micro-organism floating in the blood, which cannot produce disease until it is arrested and locates, or whether from causes orginating from within the body, a vegetation cannot do harm until floating within the blood stream it is arrested and locates. *Thus, then, every disease is primarily localized in a tissue or organ, the blood beng counted as a tissue of the connective tissue type of which the intercellular substance is fluid.* What are the first steps or changes therefore relative to this localization of disease and how are they brought about? It is my personal and firm conviction that all disease starts by reason of a localized irritation, the causes, of course, being many, sometimes amounting to inflammation and sometimes not. But that always and in either case where the disease is an organic one, the impression is on the nervous system, and that it is by the accumulative effect produced thereon by the disease, that death is finally brought about. Irritants and injuries short of inflammation, but no less real, we will not stop to consider, but suffice to say, that many organic deases are brought about in this way, and may sometimes cause death by their very rapidity and persistence, and, therefore, structural changes may not be found; however, it is interesting to note that the *phenomena of inflammation is always the same,* that no matter what the conditions and no difference where the seat, the development of inflammation is always the same, and that it is only by specilization of cells that we obtain difference of results. Further, it has been shown that the primary effect of all inflammations and the effect proper is always upon the vessel wall, that this is affected is shown by the facts that all the early phenomena of inflammation are vascular, that injury of vessels alone, according to Cohnheim, causes these phenomena, that injury of tissues alone, according to Senftleben, does not cause them, further Ryneck has shown that stasis may be produced in the frog's web in which milk or defibrinated blood is circulating in place of normal blood, and also that in vessels the vitality of which has been destroyed by the injection of metallic poisons no such stasis can be produced. In all spontaneous inflammations the cause is carried to the heart by the blood, and acts first upon

the vessels, later upon the tissues. Later investigations have therefore confirmed Lister's conclusions, viz.: "That the essential lesion of inflammation is a change in the vessel wall, resulting from an injury which increases the frction naturally offered to the passage of the blood and is a step towards death." *"There is no structural alteration of the vessel, however."*

Where, then, let me ask, is the impression of so serious an operation as an inflammation received, if in no LOCAL structure? *I answer, upon the vaso-motor nerves.*

If the vaso-motor nerves were unconnected with all parts of the body, and if they did not anastomose with the great chain of sympathetic fibres, thereby connecting them to all the more important structures and vital organs of the ecomony, my theory would absolutely break down, but when we remember that disease to begin at all must necessarily do so by local manifestation, which amounting to inflammation or in a lesser degree to irritation, it matters not, for this elaborated product we know not what, through the vaso-motor nerves being felt by reason of their intimate connections to all parts and organs of the body, and as the disease progresses and accumulation taking place in the various nervous centres (the ganglia of the sympathetic undoubtedly acting as centres for minor disturbances), that by reason of this very accumulation, death is produced.

This theory, of course, presupposing some elaborated product peculiar to each disease which may be a poison, or molecular irritant, chemical, or what not. In those bodily structures not supplied with vessels and therefore devoid of vaso-motor nerves, the cornea, for example, no such accumulation taking place, for when Sentleben, with chloride of zinc, destroyed all the cells in the centre of a cornea without admitting any white blood corpuscles to the area, the part remained quite clear. Recently in one of our medical journals a case was reported where a piece of steel was taken from the cornea, which had remained there three or four years without producing any effect whatsoever, therefore, we are firmly convinced that it is not until the marginal area where vessels and nerves exist becomes implicated that disease, and especially disease of an organic or death dealing quantity or quality, *can begin.* In a large class of functional diseases, so called, no principle of an accumulative character being elaborted, or, by reason of its interrupted occurrence, the effect being lost, if, indeed, the dividing line may not be found herein situated, viz., of insufficient intensity to effect the vaso-motor nerves, and thereby the nervous system in general, or else no disease product being elaborated.

Although electricity, gravitation, etc., undoubtedly have an influence on all life, whether vegetable or animal, yet heat, as we have seen previously, just as surely stands in the first place as regards its importance, and that the accumulation of the disease principle as the product of all organic disease, which, starting as a local manifestation, and primarily affecting the vaso-motor nerves, und through them the whole body, by that primary accumulation or disturbance, renders imperfect or diseased in action the central nervous heat regulating centre and that all disease is primarily a disturbance of this centre seems probable.

I was not a little astonished not long since when, after a perusal of a work on cancer, by Daniel Lewis, of the New York Skin and Cancer Hospital, to read this in final, which was rather put in the form of a question to the reader: "Is cancer a febrile disease?" In it he says, "There are several features in the natural history of cancer which suggest the possibility of its being a febrile disease, the similarity of the process of simple inflammation in many instances, even when the disease is still local, indicate the possible truth of this hypothesis." Raymond and Brodeur report a case in a man aged seventy-six years, in which no primary cancer could be discovered, there were disseminated hard nodules, from the size of a pea to that of a bean, which the microscope showed to be genuine carcinoma, the symptoms during life were similar to those of pulmonary tuberculosis, there were periods of febrile attacks. After giving a list of cases with charts of temperature, Dr. Lewis closes with these words: "Other records indicate, as do those above given, a decided febrile movement when there is a general dissemination of the disease, there seems to be no evidence of such a condition while the disease remains a strictly local one, the question remains, says he, like so many others connected with the study of disease, a field for the investigator, which may yield results of decided merit."

I would have the reader in especial to note that, *so long as the disease remained a strictly local one, no fever movement was noted.* In short, it is within the experience of every physician that so long as cancer remains a local disease the victim remains in robust health and suffers but little, and not until the vaso-motor nerves become implicated does the disease do harm. Then it is that the primary disturbance of fever is noted, for then it is that the nervous system is becoming involved, but while the recorded cases of cancer before us offer admirable illustration of our argument, we must by no means be led into the inference that this primary disturbance of the blood flowing and consequently a heat regulating action, is always, nor, indeed, usually observed and noted by the unaided senses nor registered by the thermometer; indeed, it is doubtful in the extreme whether we are in any way yet known to science able to positively discern just when the vaso-motor nerves are taking part in a diseased action, for surely long before the most delicate thermometer is able to detect the slightest change in heat production or heat regulation, is the disturbance being minutely und accurately noted upon the nervous centre, we may perhaps liken this in results to the thermo-electric pile in comparison to the thermometer, and then perhaps the senistiveness of the nervous apparatus is only dreamed of, for without question we are here dealing with one of the most delicate structures of organic life. Nor again, must we be led to suppose that it is solely on the heat regulating centre of the nervous system that disease is registered, *although we do believe it to be the primary one*, for very probably each disease has its distinctive centre, and possibly by reason of the intimate connection of nerves to all parts of the body, and likewise by reason of the great sympathetic system, it is not at all unlikely that every disease of sufficient intensity to produce death acts on the whole nervous structure.

If, therefore, it is by reason of a nervous system that animal structure is superior to vegetable, and having shown that disease, no matter how produced, whether by micro-organisms from without, or vegetations, deposits, degeneration or what not from within, to begin at all, disease *must begin as a local manifestation*, that

this local manifestation ofttimes amounts to inflammation, which is always the result of injury and always the same, that whether amounting to inflammation or not, its local manifestation is only irritant, means injury, and that disease to be organic *must effect the vaso-motor nerves and thereby the whole organism, that arrested at its local manifestation it cannot produce death, that in many cases the local manifestation is less at death than it was when the person was in fairly good health,* that the product of the manufacture of disease attacks the nervous system and has an accumulative action thereon, that a person dying from shock dies not as the plant from shock, but that while the plant may die from shock, it is because it disarranges its protoplasmic mass, its circulation, or nourishment, or the like, while in man the impresson is on the nervous centres cheifly. So with starvation, the plant withers and dies immediately when its inorganic food elements are withheld, but man, whose liberated food elements are presided over by nerves, although all food is withheld, he lives for days and weeks and all because he possesses a nervous system, for if the tissues of a man do not die when his body, as a whole does, we must necessarily conclude that the life of protoplasm or plant life and animal life minus the nervous system, is a thing distinctive in itself, that the life principle of man becomes, by reason of his exalted position in the organic scale, essentially a life of the nerves and that all else is subservient thereto.

INSIDE OUR WALLS.

BY GEORGE B. H. SWAYZE, M.D., PHILADELPHIA, PA.

A WRITTEN call has come to me requesting that, in public print, I enlarge on the matter of my understanding of common home-made causes of the family diseases met by physicians in general practice. My talk in response must simply deal with current facts that the human family is slow to learn and apply to personal benefit. Yesterday I stepped into the store room of a newsdealer. Went there nearly every day all summer for my papers, and know the physical comfort and open house of the complaisant proprietor. But he had now started fire in his cellar heater, the register from which is in the floor near his counter, and was emitting a considerable volume of coal gas. To my surprise yesterday, this proprietor was coughing severely. While making change, I said to him: "Mister, I must hasten out from here; your cellar heater is emitting a lot of coal gas through this register by my feet; you are already coughing severely from this gas; and unless you can correct the fault that is poisoning your store air, you will cough all winter if you live that long." Hark at innocence! "Why, will a little gas give a man a COLD?" he said. "Ten times faster than if you was inhaling a draft of pure air," and I left him to study it out.

One day last March I entered a neighborhood restaurant for an oyster stew. The man in attendance at that hour had a persistent strangling cough which at times seemed on the verge of causing him to retch. When he placed my stew before me, I said to him: "Sir, you have a bad cough." "That I have," he replied, "it has nearly choked me all winter. Nothing the doctors give me helps it." "But you have never had a prescription from me," I responded. "If you want to cure that cough and save your lungs, you can do it in less than a month if you stay away from that gas flame where you cook the orders for stews."

"But that would make me lose my job!" he exclaimed in surprise. "That part of the problem is up to you," I said. "But if you will get a job that keeps you out in open air instead of over the poisonous fumes of that beguiling ringlet of gas flame that you turn on and off with so much gusto, your cough would soon vanish without medicine while you also save your lungs—and I charge you nothing for my prescription. If I had to be around that gas affair a couple of hours, I'd have grippe from it and be strangling with cough also." Five months after that, I met this man again, and he greeted me with: "Doctor, you gave me the right prescription that time! You said my cough would get well if I stayed away from the gas flame. I stayed away—got something else to do—and that cough left in no time!"

One morning I was rung up before daylight. It was mid-winter, but a thaw was on, the air cloudy and misty, when chimneys naturally give feeble draft to fires. "Doctor, we want you right away—the baby is so bad with croup we fear she won't live unless she can soon get relief!" I hastened with the gentleman to his home—several squares away. With his latchkey he let me in at the front door, saying: "Go right up to the sitting-room—the front heater fire went out yesterday—and we have kept her in the sitting-room by the stove to-night for fear she'd take cold." The moment I passed through the vestibule into the hall, I said: "Why, Mr. W., the house is invaded by coal gas!" "Do you notice some coal gas?" he half questioned. I ran up the front stairs to the sitting-room The mother was distractedly pacing the floor with the babe hanging white and limp across her arms and striving almost hopelessly for breath.

"Your babe's croup is coal gas croup that is smothering her breathing! Throw open those windows!" I exclaimed, taking the child from the mother and hastening to the front room. Cold as it was there, I opened wide a front window to the babe, well wrapped in a double blanket, all except her face, which I turned toward the open window for direct help of outdoor air. With additional revitalizing treatment the symptoms of acute croup relaxed and the child survived; but by also pulling through a somewhat tedious bronchitis. Had this child remained an hour longer in the stove-heated, gassy room, the death certificate would have spelled—"CROUP"—and the wise health authorities would have trespassed with a house fumigation for the fancied suppression of a supposable contagious bacillus. What of the mother who had put the anxious night through with her child? Next day she went to her bed with developed grippe. Why that gas? The reach of pipe from the stove into the flue was pushed against the back wall of the flue, and in the spell of muggy weather there was no draft, and hence the fuel gas of slow combustion was increasedly backed into the shut-up room air. Many physicians recognize the fact that children's croups develop in the night—in the house air—or manifest the symptoms on waking in the morning—why? But please lay upon the shelf your old idea of "a cold" and of "a germ."

I was waked one night at midnight. It was winter. The gentleman asked me to come and see if I could relieve his wife who had "terrible cough and was so short of breath!" Her case was distressing, and she

the mother of twelve children—seven yet living. She was suffering intensely with croupous pneumonia, pale and anxious, and clammy with sweat. I was then asked to go to the story above—where I found this wife's mother striving with broncho-pneumonia. Three of the children had sore throats and continuous coughs. "Now I want you to take full charge, doctor," said Mr. K., "for we've had a physician coming, but he does no good."

"Mr. K.," I replied, "your house is dominated with coal gas; I can do very little for these sufferers unless they can be released from breathing poisoned air. How is your cellar heater draft?"

"Well, I don"t give much attention to such things, but I fear we need to have a new heater put in. The landlord says he can't afford that."

"Come right now down cellar with me," I said. "See here! That elbow is rusted out, and I'll pull it off—there!" A wash boiler more than half full of soot and scalings from flue ran off from the choked pipe and lower end of flue. For lack of draft the coal gas was regularly backed and found its way through the warm air channels to the bedrooms. Was any "germ" requisite to kill this family with pneumonic grippe? "Mr. K., this fire goes out at once!" I said. "I'll do what I can for your unhappy situation. But you go, first thing, in the morning before breakfast, to see your landlord. State the situation, and tell him for me that if he does not at once put your heating service into sanitary condition, I'll turn the case over to the Board of Health, and also make him responsible for all doctors' bills!" This fetched him; but it required a month of expert service on my part to get these desperately sick women out recovered. How they would have fared if I had been a routinist who applied to their cases rods of drugs only I need never know.

When attentively pursued it will be perceived that the ghost won't down unless the danger is well guarded. On another winter night I was rung out of bed. I recognized the man at the door. "For God's sake, come with me! I'm afraid my wife has gone crazy!" he implored. On the way I tried to soothe him by referring to mental manifestations in hysteria. He let me into the house with his key. He and wife had three rooms on second floor for housekeeping. A coal oil bracket lamp shed malodorous light on the stairway. He unlocked his wife's bedroom door at head of stairs. It was a small side-room with one window. The wife was mumbling, and continuously getting into and out again from bed. Fastened to the window frame at one side of the headboard was another smoky coal oil lamp bracket for the purpose of keeping a light burning in the room all night. For fear of "catching cold" the window was closely shut. Because of morbid fear of some prowling thief in night, the door to the front room, kept as a sitting-room, was bolted every night. With all sanitary ventilation thus habitually excluded month after month at night, this handsome woman's blood and brain and nervous system had been gradually poisoned down to the condition in which I found her. When told that the doctor had come, and I also had spoken, she bounded out of bed which only the moment before I had seen her climbing into, and kneeling upon the floor she began rubbing the carpet and stroking my shoes, saying, "Oh! is this my doctor?" I saw that she was extremely anemic, and asked a few leading questions. In the cooking and eating room she had employed the convenience of a coal oil stove—it was handy and made no dust! Others used a coal oil stove to do cooking—why not she? This had been her argument against wiser advice by myself. In her nervous depression a morbid fear had possessed her. She was afraid to be alone in her rooms. She wanted a light all night. If her husband, who lead an outdoor life, went out evenings to escape the stuffy prison of their rooms, she grew jealous and charged him with preferring other women. She complained of constant headaches, gaseous stomach and loose bowels, was mentally irritable, generally neurasthenic. At a glance I realized that I had in this demented woman another instance of blood and nerve poisoning through the auto-poisoning results of deficient oxygenation. Was I thinking of a microbe? Never an instant! Temporarily I suppressed her delusive excitement with doses of tripple bromides. Well wrapped in her ample bedcovers, I put her into a big rocker close by the open window of the front room, her sitting-room. Every air-poisoning kerosene lamp was extinguished that the carbonic oxide from the flame might be suppressed. Gradually she sank to slumber, and we put her to bed with the window at her bedside opened for oxygenating ventilation. Night lamps were vigorously prohibited. In four days she recovered reason and personal control. Later on she took a little house that would allow a proper range fire for cooking. But with feminine obstinacy she set up in her little parlor a showy gas heater to warm it—because other folks did so. And eventually this woman went insane, and was placed in an asylum, where she died. Delusions and manias are usually home-made afflictions.

Another case of extreme gravity—typical, for I am only citing a few representative situations. In the month of June was called to case of a little girl aged eight, eldest of three children, in uncanny slip-shod sort of family, living in an old-time house close by a busy railroad line in the city. The father was a locomotive engineer, much among soot and fire gases of railroad business. He was often sick; had suffered distractedly the previous year from anemia, neuralgia of head, and a bronchitis, for which I had attended him. His wife was of flabby nature and languid management, had a chronic sore foot and leg, occasional sick days of headache and anorexia that prevented her from attending to her household work. The child that I was called to had chronic eczema of scalp, for which I had prescribed the year before with much benefit, but which had now relapsed to filthy degree. The wife complained that the continuous smoke and dust from the railroad made their sickness—the house standing about twenty paces from the car tracks. But far worse was the house inside. On the kitchen side of the dividing wall was built an open grate fireplace, where the cooking was done by placing utensils upon the burning anthracite. The chimney, which arched over this fire much like that over a blacksmith's fire, did not draw up nearly all the fire gases, hence the house air was hazed day and night, winter and summer, with the carbonic oxide gases from the fire. Besides her scalp eczema, I found the child was confronted with a fearful diphtheria. The

throat swelled rapidly shut, her jaws stiffened at the joints, her neck bulged at the sides with tumefaction, some rash at first suggested scarlatina, she had severe fever. I worked the medicines into her through a space where she had lost several milk teeth. She could not talk, but struggled to swallow with gritty desperation. Scarcely anything could be done to her throat. Abscesses formed at the angles of her jaws and were early incised for exit of pus. But the process of local disintegration came to no pause till after the tonsils and the flesh beneath her left jaw sloughed. The parotid and the submaxilary salivary glands were left bare to sight. Milk put into her mouth would flow out through a hole in the left side of her throat in consequence of destruction of left tonsil.

Meanwhile the baby developed a quite similar attack. Having been kept constantly in the house, the babe was extremely anemic and white. For considerable time the child had been passive and dull, which the mother accounted for with the idea that her baby was "so good it made no trouble." The babe made no response to remedies and soon died. A boy, two years younger than the girl, had been running about outdoors from morning till bedtime through it all, and kept well and hearty. The girl, however, had always been afraid of black men, and stayed indoors —hence the poisoned state of her nonaerated blood. For about ten days the girl was nourished with milk and rich broths through the space where the teeth were out. Then gradually the stiffness of her jaw yielded, and she began to swallow foods with the eagerness of one starving. I allowed her everything nutritious that she seemed willing to take. New flesh sprang up and covered the exposed salivary glands and the ghastly cavity in her side-face and neck. Fluids ceased to flow through the channel made by slough. By degrees she began to articulate words expressive of her wants. Next her ears began to discharge suppurative matter profusely. By the time they were decently healed she could walk again —but she was stone deaf, and soon became a mute. My entire attendance covered nearly two months. By my advice the family changed location and I lost knowledge of them. It was not known that these children had been exposed to either scarlatina or to diphtheria. I heard of no other cases following theirs in that neighborhood. These cases were auto-generated by the blood-rot resulting from inhaling their poisoned house air. Fuel gas continued in the breathing-air is a positive destroyer of corpuscular vitality—hence corresponding results in families. Between this extreme case and the mildest, we meet all the intermediate degrees of developments.

From the home we follow children to the school. Four squares away is a public school in which one of my lady patrons is a teacher. The building is warmed by hot-air furnaces. Whenever these get out of order or are neglected, the class rooms are invaded with coal gas. This teacher has repeatedly come to me saying, "Doctor, do give me something to keep me up—my energies seem completely exhausted!" Opening windows is not often successful. Pupils near the open window complain of cold drafts. Pupils near registers are exhausted by the hot-air drafts from furnaces. Anemia, headache, coughs, diphtheria, tonsilitis, skin eruptions are the common antagonists of pupils. Children's brains become dull, attention impracticable, discipline perverse and difficult, study ineffectual. Scholars drop out from classes with illness, fear of contagion flouts its black flag to interrupt attendance, certain schools are backward, teachers are charged with lack of capacity, when the radical spoiler of the school is the toxic gas in its breathing-air. Sunday-school scholars and teachers are more or less subjected to the disabling ordeal of badly heated and badly ventilated rooms. An overcrowded "infant school" of little ones packed into a confined area of bad air for religious instruction is not only productive of many children's diseases by auto-poisoning, and from mingled breaths, but is a civil way-station for premature transportation to the heavenly land "where angels stand."

Close to the home comes the church with its noble mission to the world. Church heating is often indifferently done for reason that sextons are seldom men of scientific comprehension. Heat for an hour or two is the cardinal thought and purpose. The fire builder performs his routine at schedule intervals because hired for that purpose—with no condition of contract to protect people's lungs. He may not be even aware of the extremely unsanitary nature of fire gases—he may care nothing about the hazards of bad furnaces or soot-choked drafts—and even trustees may shirk consideration of complaint with the nonchalant exempt that the heaters are good enough so far as they can see. But if they knew enough to compel the firemen to pull off the soot-choked elbows they would see something of vital interest. There are persons who never go to sleep at off hours except when in church. The best constructed argument from the pulpit fails to brush away the stealing sense of drowse. A crown of glory seems to settle into the circlet of a dream. The thief is in the church with a benumbing anesthetic. The church with sleepy congregation, or with much coughing among the attendants, usually has coal gas or leaking gas fixtures. The erroneous utility of locating hot-air registers along the aisles in the floors, beneath the faces of sitters, has hastened many an invalidism and even death among the worshippers. Many a grippe has followed such a sitting for a two hours' service—this I learned by my own experience. The lack of pure breathing-air in churches does more than injure health. Normal tone and activity of brain and spirit are supremely essential in religious life. Religious interest never rises to its highest service in the stupefactions of poisonous gases and dead air. Whatever the quality of the minister's effort, mind and heart of listeners must be kept in a state of wakeful receptivity, or the word falls upon unresponsive soil to little effect. It is evident that upon the healthfulness of the church air depends greatly the physical and religious tone of the congregation. Physical comfort and mental elasticity gauge the spiritual energies and grade the higher planes of abiding appreciation.

Allow me to instance one church in point where the writer was a frequent attendant. Passive melancholia and fraternal aberrations clouded the spiritual air. Dissembling criticisms, factional jealousies or disaffections decimated the ranks of leaders and followers. Choirs could not hold together because of peculiar touchiness. Singing was laborious, voices and chests chafed, endurance yielded. Preaching was

hard work, pastor often hoarse, voice weakened, he frequently broke down and required vacation. If the membership made a gain in numbers a subsequent relapse left the pews more sparsely filled. That church was prettily located, but it had one fretting source of default—architectural misshape that prevented healthful ventilation, heaters under the floor that stood in comparative dug-outs in the ground without adequate supply of fresh air to furnish the necessary warm air to heat the house, and an overplus of fuel gas. A poison in the church spoils the service and singes the soul. If oxygen is needed to make fire burn or to brighten the blood, oxygen in the church air inhaled is also needed to make the purpose glow and grow in religious interests and physical protection. The side windows of this little church were narrow and short, swung on hinges opened on level with people's heads and therefore were denied an opening except in warm weather. The warm air drums of the heaters in the dug-outs beneath the floor rusted out, but made to continue to serve till next year's patching time came round. The red coals in the firepot of one heater could be seen through the rust-out holes in the hot air drum by looking down through the open register in the floor. The gas fixtures were continually leaking gas in the auditorium, but that was not officially considered and rectified. No hygienists were members of the church boards. A conscientious hygienist would have seemed troublesome and made religion too costly. The audience room was arched and the heat rapidly wasted. The extra consumption of coal produced extra quantity of coal gas. After people settled in their pews they would begin to cough. In about a half hour many would grow dull and drowsy. Though the minister labored vehemently to interest and impress, here and there a head would begin to droop in slumber—so deeply, exceptionally, that the sleeper snored before rousing. I have observed five persons nodding at once during a service. Next day persons frequently were ailing, and supposed they had "taken cold in church," inasmuch as they felt chilly, had headache, brushes of rheumatism, bronchitis, nervous prostration as the case happened to turn out. Lung diseases were unusually developed in this congregation, and deaths were dismally numerous. The industrious pastor and his affable wife, she who gave the encouragement of her presence whenever able to sit up in her pew, both broke down completely and surrendered the charge. Coal gas, leaking gas fixtures, unsanitary plans of heat and architecture as church propositions are predestined obstacles to church health and religious progress. Now this church instance relatively illustrates the situation in hundreds of churches, lecture rooms, public halls, all auditoriums not heated with wisely distributed hot water service. When a new pastor was called, a new church was built, hot water heating and electric lighting installed—and all went well.

Can we get a glance at the inside process of these home-made antagonisms to health and comfort? Without needless technical precision, we premise that the usual combustion of carbon in the form of coal, coke, oil, charcoal, wood, sets free the carbonic oxide gas in two forms, namely, carbon dioxide—principally the product of perfect combustion; also carbon mon-oxide—principally the product of imperfect combustion. Even if not escaping from fires and registers indoors, these gases, being heavier than air at ordinary temperatures, and though discharged at height of chimney tops, settle back toward the earth and are diffused through the breathing-air of the lower plane of the atmosphere. Thus diluted, say in towns and cities and near public works, some proportion of fuel gases drift with breathing-air into the apartments of population through doors and windows. Frequently streams of noxious fuel gases, from chimneys opening out near by, are wafted day and night in at open windows of rooms of workers, or sleepers, or perhaps of the languishing sick, simply with the current of the cooling breeze. In all cases, however, where carbonic gas is thrown out in our homes or schools or churches by combustion of fuel of any kind and illuminants, its admixture poisons the breathing-air indoors in exact proportion to the extent and density of that gas. When drawn into the lungs, carbon gas relatively imprisons the air vesicles, to the exclusion from them of oxygenating air, and, in flush quantity, causes speedy suffocation or asphyxia, frequently resulting in death. Even in small, diluted, gradual quantities, the presence of fuel gas in the air respired interferes with the normal aeration and oxygenation of the blood, impairs respiratory tissues often with which it comes in contact, produces anemia and debility with their endless chain or neurasthenias, or induces dyspnœal complications and weak heart function.

Yet further, carbon mon-oxide gas passes through the air cells in the lungs when breathed with the air, unites with the oxygen in the red corpuscles of the blood, depresses or destroys their vitality in some proportion, thereby embarrassing the normal functions of nutrition, allowing septicity of the system to accumulate, and laying the foundation for many if not most of the common forms of resulting disease. Always and everywhere a poison breathed, whether consciously or unconsciously, is as much a poison in itself to the human system as is a poison swallowed. The subtle, penerative nature of monoxide gas is comprehended when we remember that it passes through very hot cast iron. Hence in every house, cabin and shop, where cast iron ranges, cylinders and stoves are burned to excessive heat, the invisible and practically odorless emissary of disease from this source is radiated into the breathing-air of the place, measurably reaches every room and corner, because the tendency and law of house air, like air everywhere, is to equilibrium. Will you test it? See with what rapidity the odor of a scorched feather or boiling cabbage over the kitchen fire will diffuse itself to every room. All gases from burning fuel are as diffusible as is the odor of burning wool—so readily detected by the smell. But the exceeding danger of the carbonic gases from combustion of coal, coke and charcoal lurks in the usually forgotten fact that the bulk of these gases is quite devoid of any alarming odor, and accomplishes its mischiefs unsuspected.

Though carbon mon-oxide gas—CO—will burn in an excess of oxygenized air, it is not thereby consumed but merely changed to CO_2 or carbonic acid gas, which is scarcely less harmful to the human system when inhaled; and it is thoughtlessly inhaled by the masses to a very injurious extent in their homes and other places where fuel is burned with-

out open air ventilation. Most persons make the enormous mistake of thinking that after the sulphur gas from fresh supply of coal on the fire, and which they DO SMELL, has burned off, that no other danger remains. They imagine, without reflection or through ignorance of physical science, that the "blue flame" or fresh coal smell is all the gas-danger there is. Folks customarily in daytime shut up the fire a few minutes till the sulphur gas burns off, and then freely remove precautions and turn dampers which switch much of the odorless carbonic oxide into their breathing-air the remainder of the day—probably of the night also—so long as the fuel lasts and the fires continue to burn. Too many persons do not know or do not remember that fire-heat is gas-heat, and as expansive as is the hot air with which it is distributed through the house. Every adult and every child should understand that if they sit or stand so close by the fire or the register as to feel the direct expansion or drift of heat in their nostrils, they are risking the danger of inhaling carbonic or fuel gas with that heat in greater degree than if keeping more distant. Persons who hug closely about a fire for considerable time, probably because of the need of additional clothing, or on account of removal of warm clothing, are liable in a few hours after to discover that they have "snuffles," dry nostrils, irritated throats, noticeable hoarseness and cough. They imagine they have "taken cold," but they have been breathing fuel gas with the fire air. They will feel chilly because of the degree of devitalization that has occurred. In a family where two children had played about the heater register to keep warm, had contracted croup and died, although they thought they had a smart family physician—the third and youngest child later on also developed a severe attack of croup. The father, half frantic, rung me up at midnight to hasten to his house in the emergency till he could go a mile further for their regular doctor. It was winter. When I arrived, the mother, to "keep the child warm," had the register out and was holding the gasping little one with face near the open hole from the flue—stupidly causing the hastening death of their last child. I moved her away from that furnace drift instanter, and to her dismay opened widely a window. I asked her if their doctor had never told her of the deathly dangers of holding a sick child's face so near the furnace drift of a coal fire? She replied that he never had. "Then," I said, "he don't know enough to save children's lives in croup!" This child recovered. I could understand why the two other children had failed to survive their home-made affliction.

The carbonic oxide gas produced inside the walls of nearly every building, and so thoughtlessly neglected, is a corrosive irritant, and especially conducive to all the general diseases of the breathing channels and the lungs. There is no other prevalent agent inhaled that causes so much anemia in the human family. But I must defer a review of anemia to a future study. We seek now the proofs of facts in daily practice. The severest case of pneumonia that perhaps I ever saw was that of a man of modest leisure. His physician had left town for a few days, and one night I was called in conjunction with my son. I found the man nearly unconscious, moaning with every distressing breath, ashen and sweated, and coughing little except blood He lay in a small room. No window was open. Within three feet of his bed, upon a small table, was a portable coal oil stove going. His home keeper said that he used this handy thing to sit by usually in his tidy sitting-room during the day, and at night took it along to make his bedroom warm. His vitality was blighted, his lungs smitten, nothing could avail, he expired two days after our call. A man seventy, and disposed to sit around in shirt sleeves and smoke his pipe, felt chilly, huddled several days around his little anthracite heating stove, developed severe grippe, which put him into bed for ten days. When rallying from the grippe, it was discovered he had an ulcerating sore in his mouth, on left side of upper jaw. This refused to be healed. It deepened and extended, was cancerous in nature, a portion of the jaw was removed by operation, the disintegration attacked the face, he died. Repeatedly, for two years, I had urged that man to avoid his gassy old stove in winter—since he was so subject to attacks of influenza. A lady physician in a country town had been several weeks bedfast, starting with grippe, continuing with nervous prostration involving weak heart, intervals of unconsciousness, with low temperature even in blankets. She practiced in a coal town, where all burned lots of anthracite, some used cast-iron cylinders red hot, some supplemented with open grates day and night. I went to unravel the reason why the lady remained an invalid. I found that in the lower end of the hot air drum there had been burned a hole as large as the palm of my hand, close above the fire. Through this hole carbon gases from the fire were steadily suckd into the heated air channel, and thence carried into the breathing-air of the bedrooms. The cook range, when not needed in full draft and at night, was dampered off in a manner that backed coal gas immediately into the house. Furthermore, on the third floor an old lady had been confined to her room many weeks with anemia and general debility. Her room was warmed by a fancy heating stove with a self-feeder chute which conveyed by direct outlet a yarying proportion of coal gas into her limited room area. By correcting these fuel mischiefs in this fine house, recoveries were not slow. In a small house adjoining this physician had a patron family. A cookstove was in the kitchen, the sleeping-room overhead, stairway door kept open at night to let heat go up. Whenever fresh coal was put on their fire, sulphur gas was always smelled—direct proof that their fire gassed out into their rooms, especially when backed at night with cut-off damper. The two children were repeatedly subject to what the mother termed "chest colds." The mother was thin to skeleton proportions, anemic and victim of neuralgias. The father had then lately suffered an acute night attack of pleuritic and pneumonic congestion which nearly proved fatal. The younger boy developed croup one night and expired in two days. I detected the coal gas in this house as soon as I entered—but nobody had discovered to this little family in timely importance the house-causes by which they had made their own plague.

A year or two prior to my closer study of the subtle effects of combustion gases on the hygiene of house air, I had a fearful experience that set me to the task of profound thought. A young husband and wife and three children—the latter aged five and

seven years and a month old babe at the breast—had set up housekeeping in a peculiar little perch of a house, about ten by twelve on the ground, and consisting of three rooms, one above the other. The first floor was the cooking and eating and living room. Space for stairways had to be taken from the area of each room. The heat from the cookstove on the first floor was depended on to warm the rooms above by way of the open stairs. In rear of the ground floor was a miniature yard just large enough to accommodate the hydrant and the privy for the house. The family had lived in this cabin-decked house several months. I believe they had put the winter through there. In March the lad of five years became desperately ill with diphtheria. When I arrived to the case, the stove lids were off the cookstove to slow the fire which made the small first floor room unbearably warm. The air seemed pungent, and I concluded it was charged with coal gas. I opened the back door, but the odor from the repulsive privy but a few feet distant caused me to promptly close it. The sick lad had been vomiting, was in bed in top-story room, and was raving with fever. His throat and tonsils were offensive, had to be mopped repeatedly with antiseptics, and his nostrils were severely involved. In four days the throat showed encouraging symptoms of improvement, but passive hemorrhage from the nose set in, no remedies would hold the case, and the boy died on the seventh day. The degeneration of his blood seemed so complete he literally seemed to rot in the throat and nostrils—the parts where the poisoned breathing-air had swept its incipient contact of destruction. His elder sister, complaining of sore throat soon after her brother went down to bed, I had her removed many squares distant to the house of her grandmother for care, where she also died soon after under the charge of another physician. The plague was not carried to these children. Beyond all question it was developed in them by the poisoned air at home. I no longer believe that the malignancy of scarlatina and diphtheria depends on a natural extraordinary quality of virulence, but rather on the degree of co-existing impurity, or putrefactive trend of blood and cells of the system that constitute the soil on which these contagions rankle in development. A detail of cases that I have studied during the last thirty years would cover a volume of hundreds of pages—hence my convictions that no bacteriologists who profess that diseases are imparted from bacillus to persons and from person to person by bacillus as the radical cause and spread of common diseases will ever disperse.

1726 North Twenty-second Street.

Tuberculous Cervical Adenitis.—A. Gregor (*Brit. Med. Jour.*, Sept. 29, '06) relates the case of a child of six, with a swelling of one week's duration on the left side of the neck. In the father's family there was a tuberculous history. The gland was tender and painful, and it suppurated in a few days. The resulting abscess was opened and drained. The discharge continued ten days and the whole gland began to break down. The parents refusing a thorough curetting of the cavity under anæsthesia, the child was subjected to irradiation, fifteen sittings, each of fifteen minutes' duration, being held. The granulating surface closed up and healing resulted without violent reaction.

SCHOOL AND THE CHILD.

BY A. L. BENEDICT, A.M., M.D., BUFFALO.

TOO much has been said as to the evil influence of school life on the child that it seems worth while to consider the other aspect of the question. But, before doing so, it is well to admit that, like every other factor in life, school has its drawbacks and dangers for the individual. A child with incipient tuberculosis, large adenoid masses in the throat, chorea, extreme myopia and even moderate degrees of hypermetropia and astigmatism, deafness, or any serious physical weakness, ought not to be sent to a public school, but should receive only special instruction, unless the defect can be remedied. No reference is now made to diseases which render the individual pupil (not *scholar*, in spite of the use of this word in the present sense by many writers who really know better) a source of danger to others.

Education in schools is so largely a matter of sight and hearing that defects of these special senses cause backwardness, culminating in the idiocy of deprivation. For instance, a girl supposed for years to be almost foolish, was observed by a visiting relative to be reading in a peculiar attitude, with the book held very near the eyes and at an angle. The relative was not a scientist, much less an oculist, but she had common sense to recognize that some grave visual error was present. At her suggestion, this was fairly well corrected and the girl soon gave evidence of more than ordinary intellectual brightness.

According to the laws of all parts of the United States excepting some comparatively unsettled areas every normal child is required to go to school till he or she is fourteen years old and, at this time, the grammar school should have been completed. Perhaps half of the rising generation manages, in some way, by idleness, inefficiency, or by partially disabling sickness or a degree of stupidity not sufficient to warrant inclusion with the defective class, to reach the age limit of compulsory education before completing the grammar school course. However, they get enough education for practical purposes. About 10 per cent. of the population of school age—that is, of the whole stream of population as it passes a given point of age—has a full high-school education and 1.3 per cent. has a college education.

Nothing like this amount of schooling has been attained by any community until recently. Neither has the death rate ever been so low and the longevity rate so high as at present. While these rates depend largely upon conditions affecting the population under and over school age, yet it is certain that there is no conspicuous undermining of the health of school children, as compared with conditions in the past, and, indeed, time has elapsed without marked change in the school requirements, so that any deleterious influence would now be manifest in the population up to the age of 35 or 40, and by heredity in the infant population.

So far as can be determined by ordinary observation, most children enjoy going to school. By this is not meant that it is easy for them to get up in the morning, or that they do not dislike certain subjects and parts of subjects, and that they are reluctant to leave school in the afternoon, or particularly on the Friday afternoon before a vacation. Last fall the

writer saw and heard many of the children of a grammar school, on their way to the first session after the summer vacation. Their appearance and their conversation, which was entirely spontaneous and not intended for an adult's ear, showed an unmistakable and explicit pleasure in the school work. In expressing the belief that the average child enjoys his school, we do not mean that he enjoys it as he does eating candy, or going fishing, or attending a matinee; but in the sense that normal, active adults enjoy their labor: with due regard for the inertia in getting work started in the morning, for the relief of finishing a task, for distasteful details. With these qualifications, the normal child, like the normal adult, does, in the main, like his work, and realizes that he is happier than in a state of idleness. Now while an occasional enthusiast may find delight in an amount and kind of work that is excessive and unhygienic, it is a pretty safe conclusion that a wholesome enjoyment of school by the majority of boys and girls, indicates that the work is not harming them.

One of the most senseless criticisms of school work comes from adults, suddenly confronted with some question in arithmetic, geography, etc., which they cannot themselves answer and which does not occur to them as of interest. Then follows complaint to the teacher, educational department or that ultimate tribunal, the newspaper. Variously expressed, the argument of all such complaints is the same. How can a little child be expected to know what persons three or four times as old do not, and why should his little mind be burdened with knowledge that the particular adult does not find practically necessary? If the question were simply sprung on the child as the child springs it on the adult sympathizer, the injustice would be indisputable. As a matter of fact, with one exception, such questions, in arithmetic, geography, grammar or any other subject are presented to the child only after a careful preparation, so that the question is either a perfectly reasonable test of memory or else an exercise in logic which leads the child just one short step from ground with which he ought to be familiar. The exception is that, in many schools at one time or another, problems are propounded not for the sake of the information itself nor in regular course, but simply to train children in the necessary art of getting definite information from works of reference, with such hints as they can obtain by word of mouth. So, too, in general, with the exception of spelling, the rudiments of arithmetic, etc., it is not intended that the details of an educational system shall be memorized by students, nor that every subject shall be of subsequent practical utility. The main object is to develop the intellect and to impress enough upon the memory so that the child, or later, the adult, may know how and where to find information on definite topics. For instance, the tables of denominate numbers are not many of them used by many persons and all of them ought to give place to the simple metric tables, yet as a drill in mathematics and as a basis for certain lines of study and practical business matters, they should certainly be included in present courses.

A nervous specialist in a clinic on chorea, has spoken eloquently of the anxiety of the child to get to school on time, to stand high in class and to pass examinations, as a factor in etiology. So, too, at least by the laity, meningitis is considered especially likely to affect studious children. Chorea, in the clinical sense, may mean a local nervous disturbance or lesion, a metabolic affection or, perhaps, a specific infection. Meningitis is usually infectious, even pretty specifically so. The laity are thoroughly imbued with the idea that it is the bright, studious children who have meningitis and it is very easy for bereaved parents to ascribe an attack to overwork at school. In such a case, adult friends, schoolmates and even teachers, having in mind the motto "De mortuis, nil nisi bonum," can scarcely fail to acquiesce. But it is questionable whether intellectual brightness has anything whatever to do with the lodgment of an infection and equally questionable whether chorea develops proportionately more often in children in school than in those not in school or in hard working pupils rather than in those who are too lazy even to worry. Statistics are difficult to get because the age which predisposes to chorea is included in the school age.

In any particular case, the circumstances must be carefully considered before denouncing the school. There may be cited a girl of eighteen, in a public high school, high strung, delicate, frail, apparently on the verge of a break-down. Any chance infection or functional nervous disturbance would select such a girl by preference, and then how easy it would be to say that school was responsible. So, too, from another viewpoint, the break-down might be attributed to an insufficient diet, especially at breakfast. Another critic might remember having seen the girl dancing or assisting her mother in entertaining friends until midnight and, while exculpating the school, reproduce the fifth-reader diatribe about social dangers in their relation to physical health. As a matter of fact, the girl is really doing better at the public high school, where she is treated as a responsible creature than she did at a private seminary where all the pupils are graduated with an assortment of honors. And the girl herself, though occasionally sighing for the ease of the seminary, and for its social prestige, realizes that she is benefited by the more rigorous discipline of the public school. While obliged to choose her work with care, she is still able to keep up with her class and is gradually gaining strength.

As to the other two points, it is true that her diet is not all that it should be, but it would be unfair to make the incrimination a personal one. As to social stress, those who notice her presence at dances and receptions should also notice that it was only on Friday and Saturday nights and that, with moderate indulgence in such mental relaxations, she is very carefully guarded against excess and is being trained in the ways of good society by a most judicious acquaintance with her elders as well as with immature boys and girls.

In this case, we have a girl handicapped with a heritage of simple lack of strength on one side, of distinct neurotic taint on the other, with organic evidence of physical weakness and indications of a delicately balanced, yet not overbalanced, nervous system. Possibly it would have been better to have kept her out of school and to have let her develop physically. And yet, by careful attention, she has almost completed the usual formal educational course, has

been trained to take her place easily and gracefully in society and has actually gained in health and strength. Certainly, she has come out as well as many girls who have been free from the supposed baneful influence of school.

It is sometimes said with regret that our public educational system imposes an irksome discipline, involves anxiety, and places all children on the same intellectual plane, without reference to their individual abilities or limitations. Without defending the system as altogether perfect, either in conception or in practice, it ought to be recognized that the supposed general defects of our public schools are the best part of the education.

It is very pathetic to think of a poor little school girl developing spasms on account of early rising in the morning and the fact that she is anxiously watching the clock with one eye and her table utensils with the other. But, aside from any purely professional scepticism as to the adequacy of such causes, a dispassionate mind fails to see any hardship in expecting the child to go to bed so as to have all necessary sleep before seven or half past, allowing plenty of time for dressing, breakfast and the trip to school, under ordinary conditions in the city. It is only exceptionally that an individual is found, so fortunate that he does not have to work and to work at an appointed time. Even the most approved type of social idler has a good many engagements that he simply must meet on time or be disgraced. Thus our sympathy for the school child watching the clock in the morning to avoid being tardy, is reduced to the extremely impersonal and attenuated regret with which we confess to being a miserable sinner. It is simply the fate of the race.

With all allowance for foolish fads in education, for over-zealous teachers and for examiners whose idea seems to be to puzzle rather than to test the pupil's knowledge, our public school system, with comparatively few exceptions, sets the pace at which the average pupil can march without undue fatigue or anxiety. The tendency is to encourage the pupil who is beyond the average to go into a company ahead, or to act as a non-commissioned officer to help his fellows, or to take up some special detail. We find the baneful evils of too intense competition in school, just as in business, professional and social life. Perhaps it would be wise to do away with every prize that acts as an incentive to work simply to excel another and yet, if we did this, there would still be the strain, the false pride, the heart burning, the sense of shame and defeat in athletics, debates and social contests. School is of value only as it trains us to live and the child might just as well learn here as later, not to strain himself injuriously in competetive effort and to accept success or failure philosophically. Indeed, he might better have this lesson placed before him to learn under the guidance and control of parents and teachers than to be kept in ignorance of competition till he is free from authority.

Those pupils who fall below the average are more numerous and afford a more serious problem. Some are simply lazy, and have to make a spurt at examination times. For such we may feel little sympathy and little anxiety. Others are handicapped by extrinsic circumstances. In some schools, whole grades have to be taught English as well as the routine studies. This defect is usually easily remedied. More serious is the fact that an increasing proportion of pupils have at home none of the moral, sanitary or intellectual helps that, on general principles, we have a right to expect of parents. So bare are the homes and so barren the home influence that the pupil has practically no fund of general knowledge except that of the street and even the references to ordinary affairs found in school readers and arithmetics, are not understood by the child. To such, the school, instead of being a rather dreary institution for work, as we imagine it to be, is all that the child knows of cleanliness, kindness, luxury, and even comfort and warmth. Certainly, such children are not liable to physical ruin from the school, on the contrary every hope they have in the world is centered in the school.

It is chiefly with the remaining pupils who cannot keep pace with the class, that this paper deals. As has been said, individual faults may be found with the system, or the teacher. These need not be discussed here, excepting to remind ourselves that the physician or parent who has never been inside a public school from the time he graduated till his own patient or child has proved inadequate to the tasks imposed, is not likely to be an impartial or well trained critic.

Allowing for exceptional conditions, it must be distinctly understood that the child who breaks down in school, who cannot keep up with the class or who cannot stand the discipline without neurotic manifestations is a defective. The defect may be purely temporary, whether due to an essentially physical or mental weakness. It is absurd to keep a choreic girl in school or to let her sew at home or to make her do any other task requiring concentration of effort. And it is equally absurd to blame the school system as to blame mothers, for trying to teach their daughters to sew and do other simple domestic work. Dysmenorrhœa may demand for a girl some leniency in school discipline, or a more or less protracted vacation. But it is just as absurd to demand—as has been seriously done—that our school system should be remodeled in some undesignated way, so as to allow every girl beyond the age of puberty a vacation every lunar month, as to demand that business, domestic and social life shall be similarly organized.

The average child finds that he is not an average in everything, but that he excels in some study, fails woefully in some other, and maintains something like an average in others. This fact alone is part of his education, teaching him to respect individual gifts, to appreciate the natural reason for specialization of effort and yet to make an intellgent effort to do reasonably well even in those matters that come hard.

With all allowance for pupils below the average for transient and obvious physical reasons or because of natural asymmetry of intellect, we come finally to the larger group who are permanently behind and who tend to leave school for work, or to "stay home," or who gravitate to seminaries and private tutors, if the family has sufficient means.

Every such boy or girl ought to be examined to find out why he or she is behind the average class. The explanations "lazy," "stupid," "delicate," "nervous," etc., are often ignorantly used and often badly mixed. First of all every school department ought to have an adequate staff of physicians to examine eyes,

ears, heart, lungs, urine, throat, etc., of all children, not simply as part of a routine to protect against infection or as a matter of medical charity, but with special reference to class standing. As already intimated, some very definite, removable obstacle may be found, or the child's deficiency may be plainly referred to as incurable physical condition, relieving him of the stigma of laziness, stupidity, etc. As in the case of moderate deafness, this condition may not be sufficient to exclude him from school or to warrant his commitment to some special school or institution. On the other hand, the physical lesion may be so marked that it is plainly inhumane and contrary to sound economic principles, to continue the child's education.

By a process of exclusion, the group of backward children is reduced to one in which there is no notable condition of general physical disease, nor of special sense lesion, nor of any defect sufficiently gross in its manifestations to warrant committing the child to any kind of an institution to which the term asylum can be attached. Speaking plainly, the children that remain are stupid, for the intelligent teacher will long ago have eliminated the lazy ones, although she may have considered as lazy those in whom the examining physician found some definite impeding cause.

Occasionally, stupidity may be simply an extreme degree of slowness of mental action, compensated for by marked surity and strength of movement, as in some cases of bradycardia. It is scarcely worth while to attempt a formal definition of stupidity except to point out that it is not imbecility nor insanity, in any practical sense. If we try to adhere to the American doctrine that "all men are created free and equal," the problem of the stupid boy or girl becomes extremely difficult. If we forget the preamble of the constitution and recollect the experience not only of ourselves but of the world for several thousand years, the solution of the problem becomes extremely easy.

The public school is no place for the really stupid boy or girl. Neither is the active, intelligent, working world, preparation for which is the aim of the public school. There is an abundance of wholesome, though humble work for the one who is stupid and poor. This work must be done and why try to reverse the natural order by embarrassing the schools with the more or less vain endeavor to get the stupid boy through a course which will lead to his studying medicine, law, theology, or engaging in politics? For the stupid and rich, there are pleasant and, in a sense, useful social positions, preparation for which is admirably made in various seminaries and special private schools. It would be unjust to intimate that all private schools cater to this class, and yet many persons, perhaps the majority, so far as boys are concerned, in whose case money is no object, hold the opinion that the best training for the normal American youth is in the public school.

One-child sterility is found by F. S. Matthews (*Surg. Gynec. and Obstet.*, May, '06) to be as frequent as absolute sterility. The causes are gonorrhœa, sepsis, retroversion or flexion, tumor, etc.—almost always some pathological condition of the female genital tract. This sterility is acquired, generally from gonorrhœa, and is not congenital.

NOTES ON THE MANAGEMENT OF LABOR.

BY W. T. MARRS, M.D., PEORIA HEIGHTS., ILL.

IT makes pleasant reading to sit in a comfortable chair by the glowing embers and peruse the obstetrical experiences of fellow accoucheurs. Many of these gentlemen who disclose to us their obstetric lore write as if managing a case of labor from start to finish were as easy as rolling off the proverbial log. It is presumed, of course, that to obtain such happy results we are to absorb their particular methods and routine. A few writers—they are in the minority—tell us their troubles and dilemmas without any glitter of tinsel and how they extricated themselves from them. From these we are as likely to profit as much as from experiences that come from more scientific and erudite pens.

In no other branch of medicine does a man so much earn his money as in the practice of obstetrics. One cannot live and practice the art long enough to unerringly know when premonitory pains in any given case will eventuate in the first stage of labor. Even during any part of the first stage the termination of labor is simply a matter of speculation. After labor is on, evidenced by a dilating os, the law requires the obstetrician to remain with the case until the third stage is passed. Fortunately the average length of time required is only seven or eight hours, but quite often it is two or three days, as many who read this will readily acquiesce.

The methods and measures of facilitating normal labor I made the text for an article in the September TIMES. These were chloroform, emetics, quinine, sitz baths, rectal injections, mechanical aids, such as change of posture, abdominal bands, etc. Since writing the article I note that some other writer in a journal emphasizes the value of the hot hip bath, claiming that it has given him far better results than any other routine procedure. The bath in order to be of any great utility must be carried out effectively and persistently. If done in a haphazard manner little can be expected. The woman should be placed in the largest tub that can be procured, if no portable bath be at hand; she should sit flat down in the tub and not be permitted to sit in a "twist," so that the uterine and abdominal muscles are thus put as it were in a splint. The woman is prone to put her muscles at rest so that she can enjoy the freedom from pain. The bath should be continued from one-half hour to one hour. As the water cools it should be replenished by more hot. Sufficient blankets should be placed around the patient to keep her warm.

One thing I did not mention previously was the rupture of the membranes. Hydrostatic dilatation has many points in its favor over plain cephalic dilatation, the former being the method of Dame Nature, who is a better physician than any of us. However, there are many conditions where a timely rupture of the membranes will speedily terminate the labor with safety to the patients and satisfaction to accoucheur. Excessive liquor amnii often makes the procedure imperative. If the os is three-fourths dilated and the woman's pains seem unavailing a careful examination during pains should be made. If there is no advancement of the head or membranes during repeated pains here is a case for rupturing the membranes. It is, of course, presumed that there is sufficient engagement and no indications for altering the position. The latter procedure can usually be better accomplished while the membranes are intact. Various instruments are used for rupturing the

membranes, from an overgrown finger nail to a hairpin. This should be done carefully and antiseptically. It is quite an easy matter to make a slit in the baby's head that may cause you some hard thinking in order to dig up a plausible explanation for it. Perhaps a long blade of a hemostatic forcep is as handy an instrument as can be used. The rent may be further enlarged with the index finger. The writer has ruptured the membranes with a whalebone bougie.

Before getting too far from the thought again I wish to refer to the folly of the woman bearing down until the latter part of the first stage. From the very onset of pains the woman is inclined to "bear down," or if she does not do so through her intuition some of the attendants are sure to admonish her to "bear down." Women take to this "bearing down" process as a duck does to water. Why? Do they instinctively think it will aid in terminating their labor? No. The main reason for her tugging and grasping the hands of attendants in a frantic bearing down act is that it radiates the center of energy and splits up the pain, thus in some degree mitigating her suffering. During the first stage of labor, which is only the stage of dilatation, the expulsive efforts of the abdominal muscles are futile and tend toward physical exhaustion. The heroic pulling done by women in the second stage is also useless and is energy misdirected. It is true that holding the hands and slightly elevating the head and shoulders in such a way as to brace and steady the patient will afford her a little relief and give the muscles a better chance to contract and relax. During the last few volcanic pains when the head is nearly through the vagina the woman should rather be encouraged to scream. Relaxation of the glottis diverts energy and relaxes muscular tension in the pelvic region, thus making for the safety of the perineum.

A well-arranged toilet procedure for the confined woman makes for the reputation of the physician, just as good gentlemanly deportment and an air of confidence does. Most men who do much obstetrical work use the Kelly pads, but I have known good ones who never owned one. It is inconvenient to carry them a long distance. Then having them cleaned, dried and returned by persons is quite a bother that some do not care to take upon themselves. However, their employment usually finds favor, particularly among esthetic patients. An oil cloth or rubber sheet makes a fair substitute, as well as do several layers of newspapers. A clean sheet should be folded and placed over this, being pinned at the corners with safety pins. This with all the débris are easily removed after the labor is over. The woman should have on a clean gown which during labor is pinned up around her waist.

Post-partum hemorrhage is a rare thing, but it has a way of coming when least expected. It is best to rely upon mechanical aids to get the uterus to contract rather than upon drugs. If hypodermics of ergot and whisky are ready they may be used and later may be given by way of stomach. Adrenalin may also here have a useful place. The uterus should be manipulated through the abdomen with a cold hand. Cold applications to the abdomen are indicated. If the case looks bad a clean hand should be introduced into the uterus to clear out clots and débris. The hand also excites that organ to contract. Ice may be introduced into the cervix. Of course, there is danger from infection, but it is preferable to be infected than dead. A tampon of acetic acid introduced into the womb has many advocates. Vinegar may be found in nearly every home. Phtalate of cotarnine is one of the newer products that is extolled for this purpose. Whatever method or remedy will coax the uterus to contract will close up those open sinuses and control the hemorrhage. It was at one time considered a good routine measure to elevate the woman's hips and also the foot of the bed. This is now thought to be of doubtful utility, as it may possibly hinder the uterus in its contractile powers.

It seems to be a fixed idea the world over that the parturient woman should lie abed nine days. A goodly number think that on the tenth day they can get up and run the sewing machine or put out a washing. I make the reference to those in the mediocre station of life, for there is where we find most of our babies. This nine-day rule needs *judicious* enforcement. It is the writer's opinion that after the first day or so when danger of hemorrhage is past the woman should each day assume an upright posture a few minutes at a time. This should be increased in duration a little each day. It prevents blood stasis, favors the vasomotor system, relieves fatigued muscles, aids secretions and excretions and by force of gravity helps materially in expelling clots and pent-up remains of secundines. The woman should be shown whereby it is to her interest to recline a good part of the time each day for at least thirty days. The process of evolution is a hard matter upon which to speculate. Many women are as able to be up on the third day as others are on the ninth. With many physicians the abdominal band has been relegated to the past. The band certainly has its uses. It is one of our strongest safe-guards against sub-involution and is preventative of a pendulous abdomen. Before confinement it is often quite conducive to the woman's comfort and I always have one applied when a woman is threatened with premature labor.

It has been a time-honored custom to wait until the third day before giving the lying-in woman physic. This is wrong. No one would think of letting any other sort of patient go three days with the greatest excretory function of the body in a locked-up condition. The woman at this time is in a general state of uncleanness, for the function of secretion and excretion has been somewhat perverted temporarily. The smell emanating from her skin, breath, etc., is evidence of this. Castor oil, senna tea, cascara and many other things may be used, and most physicians nowadays administer a laxative within twenty-four hours, there being no contra-indications for so doing. If there is a coated tongue and very great disturbances of the alimentory tract I begin the cathartic with two or three grains of calomel. It acts upon every gland and secretion and greatly obviates the danger of sepsis.

Sepsis should be explained to the lying-in woman as being a result of infection and not due to "taking cold." She and her attendants should be admonished to employ ordinary cleanliness if not strict surgical sepsis. The lying-in chamber should not be kept too warm, as the bathing of the skin in perspiration has a depressing effect and if she should then be subjected to a lowered temperature, as may occur during the night, a chill may ensue. It is not quite a settled matter as to whether a chill is a precurser of sepsis or vice versa.

Absinthe is stated to have been officially expelled from Belgium, and France is considering the advisability of putting an unusually heavy tax upon it.

The Medical Times.

A MONTHLY JOURNAL

OF

Medicine, Surgery, and Collateral Sciences.

FOUNDED BY EGBERT GUERNSEY, M. D., LL. D.

ALFRED KIMBALL HILLS, M. D., F. A. M. (N. Y.), EDITOR.

Published on the first of each month by the Medical Times Company, at 669 Fifth Avenue, New York, to whom communications should be addressed and all checks made payable.

One Dollar the year. Foreign, Six Shillings.

NEW YORK, DECEMBER, 1906

MEDICAL REPORTS VIOLATING THE PRINCIPLE OF PRIVACY.

ONE of the fundamental principles of medical ethics is that the relations between physician and patient are essentially for the benefit of the latter and shall not be turned to his disadvantage in any way. As a corollary, it follows that the consultation is a strictly private matter and that anything learned by the physician in his professional ministrations must be regarded as confidential. The attempt has occasionally been made to distinguish between disclosures and discoveries necessary to the professional ministration and those which are incidental and unnecessary. As a general rule, courts of law have decided broadly that any information acquired during professional ministration, and which would not ordinarily have been acquired without it, is confidential. This is a wise rule, for, in the first place, neither the patient in volunteering information nor the physician in asking questions, can determine in advance, just what is necessary and what is irrelevant; and, in the second place, the nature of the relation between physician and patient tends to produce an intimacy of unsual degree, under the influence of which, the patient entrusts the physician with information or renders himself liable to close scrutiny quite comparable to that of an inmate of the family.

Entirely aside from medical ethics, gossiping and tale bearing is despicable and unless the duty of protecting society by giving warning of crime, observed quite aside from his professional relations, seems paramount, it is a good rule for the physician and every one else to keep a close mouth as to the foibles and misfortunes of his neighbors.

We wish to lay particular stress upon the tendency of some medical writers to include in reports of cases, sufficient data to lead to the identification of the patient. For instance, a dermatologist states that Dr. A. B. C. has been treated for an extra-genital chancre; a gynæcologist mentions among his patients a woman whose first name and initials and residence in a village are given so that the most unskilled detective could learn her identity. The most remarkable case of this nature is the publication at length of love letters from a woman employed in an institution for the insane—not herself a patient—to one of the medical staff. The case is described in such a way that identification would be easy for any interested person, and, indeed, there must be quite a number who would recognize the woman at once, if they happened to see the report. The journal, by the way, is a medical weekly of wide circulation. It may be stated in passing that there is nothing in the published letters to demonstrate insanity but merely an unwise and too freely offered affection. It is also admitted that the "patient" has been at large for a considerable time, and is supporting herself without apparently attracting attention as a lunatic in any sense of the word, and that the patients's family do not regard her as insane.

In such an extreme case of violation of the spirit of privileged communications, several comments suggest themselves. The reporter leaves us in doubt as to whether he is giving us an autobiography or a chapter from the biography of a colleague. At any rate, the case does not appear to be strictly an instance of violation of professional secrecy, the addressee not claiming to have cared for the woman professionally. While the letters must have been embarrassing and troublesome, it does not appear that the recipient was subjected to threats or even intrusion to such a degree as to justify him in appealing to the authorities for protection and it seems that, after calling the attention of the family to the state of affairs and giving his diagnosis of insanity, he might have felt that his whole duty had been accomplished. Very many men, especially physicians, clergymen and the like, receive at some time in their life, written offers of affection from women and such letters, though doubtless extremely foolish, are far from being indications of insanity. It seems rather caddish to publish such correspondence, even under the guise of a professional study, although there would be no objection to alluding to them in general terms. Finally, there are so many instances in which one party of a love affair—usually the woman—takes seriously, what the other party intended as a passing diversion, that the publication at length of such correspondence as we have mentioned, is unwise. The reporter takes pains to explain that there was absolutely nothing to warrant the letters, but there are bound to be cynical readers who will ask sarcastically for the other side of the story, and, doubtless, these uncharitable critics will recall in their own experience too affectionate and trusting women whom they them-

selves would like to be able to regard as insane.

In reporting cases, it should be remembered that the professional duty of secrecy is violated whenever any reasonable clue to identity is given. Ordinarily, a brief designation of a case by initials, age, sex, etc., is allowable, even though it is possible for a trained detective, by bribing servants, watching the office, hunting up hospital records, etc., eventually to establish the identity of the patient. Anything unsual in the patient or his disease, should lead to particular care in suppressing details that might establish identity. For instance, there would be no impropriety in saying that Miss Susie K., of Chicago, was operated upon for appendicitis. There would be not only impropriety in saying that Miss Evangeline E. O'R., of Smith's Corners, was curetted for a 3-month's abortion, but such designation would probably be held actionable. (Note.—The names and initials here used are entirely fictitious.)

Sometimes, it seems as if the physician intended to brag of his distinguished clientele and to furnish data that would enable any one reasonably well informed, to establish the identity of the patient. The general line of business, climatic conditions, approximate scale of living, etc., are pertinent points in a case report. But it is certainly unnecessary to designate a patient as "a millionaire steel corporation president," to tell in just what city he lives, or to distinguish a "prominent politician" as Republican, or to describe a woman as beautiful and accomplished, or as a celebrated actress.

It is a good plan to designate cases in tables or citations, by initials or, better yet, by numbers, so as to facilitate reference to records in the event of discussion or of subsequent reporting of progress. Otherwise, designation of persons and places is unwise. In the instances just cited, it would be perfectly proper to state that the first case was that of a man of means and occupying a responsible executive position, if the factors of nutrition, exposure to weather, occupational predisposition and ability to enjoy the refinements of medical aid were concerned in the report. If the patient had slipped and broken his leg, it is difficult to see the bearing of such data. The excitement, possible disappointments and temptations of political life, similarly might or might not be significant in the history; but, except as a campaign joke, reversible to suit the occasion, we can scarcely imagine the affiliation with one or another party to have any medical bearing. Certain nervous conditions would also afflict with different frequency and degree, women in different walks of life, and literary or musical or artistic duties might also act as etiologic factors, but we can scarcely contend that statistic or pathologic results would be influenced by beauty or celebrity or that vague prowess termed "accomplished."

THE OPSONINS.

TO one who had the good fortune to hear Professor A. E. Wright, of London, lecture recently before the Harvey Society of New York City can fail to have been impressed by the earnestness and the scientific acumen of this great physician. He discussed the "Therapeutic Inoculation with Bacterial Vaccines," a subject of most momentous interest to our profession to-day, searching as it is for the best means by which to combat the infectious diseases. Dr. Wright's lecture was but a brief résumé concerning his work during several years past upon the opsonins; this work we can but sketch here, referring the reader to the lietarture for detailed information.* In another column we give the method of obtaining the opsonic index.

We know, with regard to infections, that there are natural anti-bacterial resources within the body not to be found in ordinary culture media. The phagocytosis carried on by the leucocytes is now, we believe, a phenomenon quite unquestioned. But in addition to and in reinforcement of this property of phagocytosis are certain properties inherent in the "bacteriotropic substances" of the blood plasma. We would here enumerate four of these properties—the agglutinic, by means of which bacteria are clumped; that of the lysins, which dissolve bacteria; that of the bactericides, which are germ-destroying; and lastly, that of the opsonins.

The precise nature of the opsonins is as yet not known; their presence is manifested by the effects which they produce. They act upon the bacteria and change them in such a way that they are more readily assimilated by the phagocytic leucocytes than bacteria not so treated. And this change is produced by the inoculation of definitely measured bacterial cultures. For example: A case of acne (staphylococcus infection) was several times inoculated with dead cultures of staphylococci, a complete cure resulting. When the patient was almost well his blood was examined by mixing one volume of it with one volume of freshly washed human leucocytes and one volume of an emulsion of staphylococci. On making smears of this mixture it was found that each leucocyte had engulfed on an average 26 cocci. The same test, when a normal person's serum was used, showed only 13 cocci per leucocyte. The inoculations in this given case had therefore raised the opsonic power of the patient's blood. Regarding the index of the normal individual as 1, that of this patient was 2. Wright's researches have shown that the change is one of the serum and

*Phagocytosis and Opsonins. Hektoen, *J. A. M. A.*, May 12, '06; N. Y. MED. TIMES, September, '06, p. 285. The Opsonic Index in Medicine. *N. Y. Med. Rec.*, June 30, '06. The Therapeutic Inoculation of Bacterial Vaccines in the Treatment of Tuberculosis. A. E. Wright, *Lancet*, December 2, '05. The Foundations of Serum Therapy. A. E. Wright, *Clinical Journal*, May 12, '06.

not of the leucocytes. To be effective against a given infection the bacterial culture of the germ concerned in that infection must be inoculated; e.g., that of the bacillus of Koch in tuberculosis, that of the streptococcus in septicæmia, etc. The inoculation of a bacterial culture is followed by a decrease in the opsonic power of the blood ("negative phase"); this drop is then succeeded by an increase to a point above the original ("positive phase"). Too large an inoculation is followed by a very marked negative phase; and the subsequent positive phase is insufficient to restore the opsonic strength to the original point. Several such inoculations, or inoculations given at improper intervals of time, will give an accumulation in the direction of the negative phase, the end result being a lower opsonic index than was present originally. But inoculations well-planned as to dosage and intervals of time will give an accumulation in the positive phase and a higher index than was originally present; this should be the practitioner's aim.

Dr. Wright discussed an interesting case of a boy suffering from hip disease. He had not walked for some time prior to the first blood examination, and was carried into the laboratory. Immediately after the blood was drawn for the first test the boy was made to walk briskly about the laboratory for some fifteen minutes. The blood being then again tested, a sharp drop in the opsonic index was found. Then six examinations made subsequently at twenty minute intervals showed that the sharp drop was succeeded by a rise and that after several more slight changes the blood showed a higher index than originally. The exercise which the blood had undergone had evidently induced an autoinoculation—the boy's blood had received some tubercle virus. Wright finds that if such patients are allowed to rest quietly in bed they have no autoinoculations and their opsonic power remains low; and they do not do so well. But if they are judiciously exercised or massaged they become autoinoculated and increase their opsonic index; these cases do well.

It is evident to the practicing physician that the greatest care must be taken in employing such means as these. Full many a fatality, as we know, has followed immediately upon violent exercise in a tuberculous patient. This Wright recognizes. He observes that the good which is done by simple surgical interference is probably due to an increased opsonic index produced by the resulting autoinoculation. We may thus explain the benefit which often follows paracentesis for a tuberculous peritonitis. Wright truly believes that disturbances following exercise or an operation, or massage of a tuberculous joint or of a mass of tuberculous glands may be too severe, resulting in increased severity of the disease. But these dangers, he maintains, are avoided in artificial inoculations, scientifically made.

This principle, upon which Wright works, is a sound one. It is now an established fact of the pathology of infections that every bacterium evolves its own antitoxin, which generally remains potent against the particular infection in question throughout the life of the given individual. This is why, for instance, those who have had smallpox or yellow fever need not fear a recurrence; they are immune.

The eminent lecturer referred to the various methods of combating the infections now at our command—the expectant plan; treatment by means of chemical antiseptics; extirpation; treatment by the determination of lymph to the infected region; the Finsen light; Bier's passive congestion; Koch's old tuberculin; the treatment by anti-sera, inaugurated by von Behring. All of these methods, Wright declares, have their very decided limitations and defects. And in this statement he is quite correct, as every practitioner knows, except perhaps with regard to von Behring's anti-tuberculosis serum. As we have not yet received this product from von Behring's hands, we are not in a position to judge of its merits; we are, however, entitled to hope much for it, recalling as we do the great good which has resulted from his diphtheria antitoxin.

The deliberating reader will conclude, from this sketch, that while the work of our London confrere is worthy of the greatest attention and study, we are not yet in a position to accord it complete approbation. At present the method is so difficult as to be impracticable in general practice; but here, as in all things else, simplification will come with time.

THE DIFFICULTIES OF RESEARCH FOR AMERICAN INVESTIGATORS.

A PATERNAL form of government may be bad for the people, but it is an excellent thing for science. Thus, take Germany, which, as is well known, is the best type of paternalism, the government so controls and encourages all branches of science that as a nation this country is far in advance of all others. Take the history of students in research, inventors, or scientists in England or America and we find a story of individual effort for advancement with no encouragement from the governmental authorities and generally very little from universities or schools. Carnegie and Rockefeller have seen and recognized this lack and have endeavored to supply help from a private source. But private sources must ever be inadequate. This is unfortunate, for it not only retards the investigator, but it prevents him from being a source of inspiration and a disseminator of knowledge to others.

The happy condition in Germany is well expressed

by Dodson in an address some years ago before the medical department of the St. Louis University, published in the *Journal of the American Medical Association*. He writes:

"In Germany, twenty medical schools suffice for the needs of 60,000,000 of people—each is the medical department of a university of which it is an intimate and integral part, and these twenty universities are all under the one central control of the secretary of education for the empire. The admission requirement, uniform for all, is the completion of the course in the gymnasium—about equal to the completion of the sophomore year in our better literary colleges. The course of medical instruction extends over five years, and is in the hands of men who are, uniformly, the recognized masters in their respective branches, the fundamental subjects, anatomy, physiology, etc., being taught by individuals, each of whom employs his whole time and energies in investigation and instruction in his chosen branch. The relation of the medical schools to the hospitals is such that abundant clinical material can be controlled and properly utilized. The medical graduate secures his license to practice by an examination, the *Staats-Examen*, which is uniform for the entire nation, and which is conducted by its ablest teachers who give hours and days each year to this laborious but important duty, subjecting the applicant to thorough practical tests which are in harmony with the methods by which he has been taught and which really measure his ability to practice his profession successfully. The license thus procured is good throughout the empire and its colonies."

This is different from affairs in our own country, where instead of twenty schools we have one hundred and fifty-seven for a population scarcely one-third greater than Germany. These schools graduate about twenty-five hundred more scholars than are needed; the faculties are composed of men who may or may not be well fitted for their position, and the curricula are diverse and often illogical. Again, instead of one board of examiners, we have forty-five, with a general lack of reciprocity. It is true that we are advancing rapidly, but there is still much room for progress.

In consequence, when it comes to research, the American scientist has a hard road to travel. The majority of investigators have been encouraged and sustained by their connection with some great university and have made their discoveries within such classic walls. This is the reason that Germany has been the Mecca of all scientific men for thirty years. These masters became such because they were provided with every opportunity for research, and had freedom to seek the truth.

It is the bold conception of Doctor Dodson that we must recognize that research is a legitimate and necessary function of every medical school. The faculty of such an institution is in duty bound to make contributions to the world's store of facts, methods and principles. To this end, it must number among its members, especially in connection with the fundamental branches, men who are devoting their time and energies exclusivly to research and teaching. Only in this way can there be secured men who are competent to instruct students. Whatever may have been the case in the preceding generations, in our day the real masters of any branch of knowledge are uniformly those who are contributors to that science, and not merely transmitters of the knowledge of previous workers. We need such men, moreover, in the clinical branches, men who, relieved of the burdens of ordinary practice, and supported by adequate salaries, are able to devote their entire time to the study of hospital cases, and to the exhaustive investigation of disease in the hospital ward and laboratory.

These men must not only be given a livelihood, but they must be provided with suitable material and appliances, and with adequately trained assistants. All this means expense, and large expense, too; a cost altogether too great to be borne by the student, the expense of whose instruction has already reached the limit of his means. Moreover, as the fruits of this research are to be enjoyed by the community it is proper that the cost should be borne by the community through private endowment or by the aid of the state.

We are getting more rapidly to this goal than perhaps we realize. Certainly we have made more progress in the past fifteen years than any one would have dared to hope.

THE PREVALENCE OF DISEASE.

AT the recent convention of the International Association of Accident Underwriters there was presented a report by a special Committee on Tabulation of Sickness, experience covering 130,918 people, having 37,681,189 days of exposure. This experience covered the year of 1903, which was the latest to be completed in details. It was found that in this group of insured people, largely men, for women are not insured unless wage earners, there were 216,390 days of confinement to the house and 18,008 days of sickness not requiring confinement to the house. Thus it can be seen that of the average business man, about one-half per cent. of his time is taken up by illness, and when he is sick he is confined to the house, for only eight per cent. are reported as not so confined. To the companies on the basis of a five dollar a week indemnity, the cost under these policies was one dollar and forty-nine cents. The analysis of these tables are most interesting; thus, taking one series, there were

the following number of days confined per hundred days of exposure:

Ages.	Days.
10-19	522
20-29	572
30-39	643
40-49	778
50-59	1,230

There is a regular progression in the average number of days sickness per hundred thousand days of exposure with advancing years.

Again when it comes to the prevalence of disease as shown by claims paid, there was paid by all companies claims for typhoid fever to the amount of 33,429 days. Thus typhoid fever is the most prevalent disease for which health insurance is paid in the United States. Next comes influenza with 24,146 days, then pneumonia with 23,447 days, followed by pleurisy with 12,737. Then, curiously enough, comes appendicitis, with 12,609 days of confinement to the house. Bronchitis stands next with 10,244 days. Thus, of prevalent diseases, those of the respiratory tract seem far more prevalent than all others. Such standard diseases as cardiac troubles, diabetes, cystitis, diphtheria, gravel, nephritis, and peritonitis are all far below in the list.

Taking the tables for age, it is interesting to note the prevalence of diseases at the various periods of life. Thus, typhoid fever shows its greatest prevalence from twenty to twenty-nine, with 963 days, dropping in the thirties to 743, to 186 in the forties and twenty-eight in the fifties. Influenza, on the other hand, is most prevalent in the forties, while pneumonia is reported in the largest number in the thirties, as is pleurisy. Appendicitis is also more prevalent in the decade from thirty to forty. Bronchitis, on the other hand, is more prevalent in the "forty year" group, while such diseases as seem more common in old age are found often more prevalent earlier; thus, locomotor ataxia is reported more frequently between thirty and forty than at any other age; gravel, curiously enough, is most frequent in the twenties, and rheumatism in the thirties.

Of course, in one sense, these tables can be misleading, for the average age at which a man insures is generally in the thirties or forties. Insurance, as a rule, of any kind, does not appeal to the young, and it is expensive for the old. But when a man has gotten into the thirties, he is, as a rule, more thoughful, less likely to take risks, and to have a family dependent on him. Hence, there being more men of thirty or forty insured, naturally more illness is reported from these ages. There may be as much disease in the twenties or the fifties, but these cases are not insured; on the one end the applicant is shy, on the other end, the company, for few companies insure for health over sixty, unless the applicant passes a good physical examination.

STATE CONTROL OF DISEASE.

POLITICAL parties may dispute the idea of centralization of power as did the Democratic party during the Civil War, but in medicine is indisputably the most efficient method of fighting disease. State boards of health are absolute necessities, provided they are given full police power.

In the recent reform legislation in Pennsylvania there was established a department of health which was given great power throughout the State for the correction of sources of contamination and the removal of foci of disease. The State was divided into districts, and all regions not provided with local boards of health are obliged to report direct to the State capital all contagious diseases, births, deaths, etc. In addition the department has a staff of efficient officers who disinfect after contagious disease and inspect drains and water supplies. Already in a tour of inspection of the Schuylkill River, which supplies the drinking-water of Philadelphia, fifteen hundred sources of pollution were found and removed. Also the department supplies free antitoxin for diphtheria cases to the poor.

As a result, the recent report of scarlet fever and diphtheria is interesting. While these diseases occur most frequently in the winter months and during the school period, there was a marked decline this year during this period, when they ordinarily reach their highest points. Thus, in January there were one thousand and forty-two cases of diphtheria reported for the entire State, or a monthly rate of fifteen and thirteen hundredths per one hundred thousand of the population. This sank to twelve in February, or only eight hundred and eighty-five cases; then in March to eight hundred and fifty cases, and seven hundred and three in April, or a rate of ten and twenty-one hundredths. The disease was still less in May, showing six hundred and eighty-eight cases, and so on down to August, with four hundred and sixty-one cases, or six and sixty-nine hundredths, less than half that of January.

Scarlet fever was reduced at almost as good a ratio. Thus, in January there were eight hundred and seventy-nine cases, or a ratio of twelve and seventy-six hundredths to one hundred thousand of the population. The ratio crept down through the winter and spring months until it reached three hundred and fifty cases in August, or five per one hundred thousand.

It is an interesting and curious fact that the decrease in scarlet fever was quite as good as that of diphtheria, although no antitoxin for the former disease was used. It would be interesting to know the relative mortality, but that is not given. Undoubtedly, however, it is far lower in diphtheria.

The instructions sent out to the patient's family in cases of typhoid fever are so excellent and so judicious that they are quoted here, not because they contain anything new, for they say nothing of treatment, but simply suggest the destruction of the contaminating agent, and every farmer and laborer throughout the State gets this instruction, backed by the authority of the State government.

Wipe out typhoid by killing the germs in the bed-pan. Commonwealth of Pennsylvania, Deparment of Health. Circular No. 2. Rules to be observed by nurses and attendants in charge of persons suffering from typhoid fever.

Place the patient, if possible, in a well lighted and well ventilated room. Remove from the room all superfluous articles of furniture and draperies. Kill the typhoid germs contained in the discharges of the patient before they leave the sick-room to lay other fellow beings low with this disease. Secure any of the following disinfectants: Kreolin, Lysol, tri-kresol, chlorinated lime (chloride of lime or bleaching powder), or a 40 per cent. solution of formaldehyde which is preferred. Make up disinfectant solutions from the above by adding three teaspoonfuls of kreolin, lysol or tri-kresol or eight teaspoonfuls of the 40 per cent. solution of formaldehyde to a pint of water, or one-half pound of chlorinated lime to one gallon of water. Keep constantly in the bed-pan, urinal, chamber or commode or vessel intended to receive the discharges from the bowels or bladder, a moderate quantity of the disinfectant solution selected, and after receiving the discharges add a quantity sufficient to equal the amount of the discharges. Cover and remove the vessel and allow the contents to stand for one hour before emptying the same. Never empty the discharges upon the surface of the ground, or into a stream, even though disinfected. If the discharges are emptied into a water closet or privy they must be thoroughly disinfected first. They must never be buried until after being thoroughly disinfected and then never less than one foot deep nor within one hundred feet of a well or water course. If a privy well is used, empty three gallons of any of the disinfectant solutions into it daily. Keep constantly on hand a basin or other vessel containing one of the solutions mentioned for the purpose of washing your hands. Wash your hands in the solution immediately after handling the patient, the discharges or any of the body clothing. Keep constantly in a convenient place a tub or other proper vessel containing a sufficient quantity of one of the disinfectant solutions in which to soak all of the patient's bed and body clothing. (If chlorinated lime is used for this purpose, one-half pound should be diluted with eight gallons of water.) Place all such clothing in this vessel immediately upon its removal from the bed or body of the patient, leaving it in the disinfectant solution for at least three hours, after which it should be boiled thoroughly for at least one hour. Do not permit the use by others of drinking vessels or eating utensils used by the patient, until boiled for at least one hour. Do not eat or permit others to eat scraps or remnants of food left by the patient. Burn all such material at once. Add a disinfectant solution to all water that has been used for bathing the patient, and dispose of it in the same manner as the body discharges. Do not throw this water on the surface of the ground. Thoroughly disinfect all discharges from the mouth and nose. If received in vessels treat as all other discharges. If received in handkerchiefs treat as bed clothing, or if received in old linen burn the same at once. Thoroughly screen the room to exclude all flies and mosquitoes. Destroy all insects in the room. Exclude domestic animals. Do not kiss the patient. Do not encourage visitors to the sick-room. Aside from their disturbing influence on the patient they may through carlessness contract the disease. Boil all water used for domestic purposes. Follow these rules during the entire illness; do not relax them during convalescence, but continue until entire recovery, as the specific germ of typhoid may exist in the stools or urine of typhoid patients for at least four weeks after the disappearance of the fever.

These rules are clear, exact, practical and easy to follow without expense. Now, every home on every hillside in the Keystone State must follow them, without regard to the individual opinions of the occupants. There have been in late years many epidemics of typhoid coming through milk from infected farms. The State commissioner detected at once many such cases; thus one milkman supplied the main line towns of Pennsylvania; the commission found many cases developing in one or two towns and at once traced it to this one farm. They found the proprietor in bed with typhoid and his hygienic arrangements as to the handling of milk deplorable. There is now such a dearth of farm hands that any farmer is glad to employ any dirty tramp from the pike, if he can milk. Over a hundred cases developed from this one focus, but it would have been undetected if not for the State board. Professor Dixon is deserving of great credit for the work he is doing. He has stirred up much opposition and the anti-vaccinationists are trying to make a political issue of his efforts against smallpox, but so far without effect.

BIBLIOGRAPHICAL

A Primer of Psychology and Mental Disease.—For Use in Training Schools for Attendants and Nurses and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. Burr, M.D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases; Formerly Medical Superintendent of the Eastern Michigan Asylum; Member of the American Medico-Psychological Association; of the American Medical Association; Foreign Associate Member Societie Medico-Psychologique of Paris, etc. Third Edition. Thoroughly revised, with illustrations. Pages viii-183, 12mo. Bound in extra vellum cloth, $1.25 net. F. A. Davis Company, Philadelphia.

This is an excellent little book for its purpose, containing only the A B C of its subject. The section on Psychology has been thoroughly revised, and that on Forms of Disease rewritten to accord with the newer classification of the insanities. The subject of medical treatment is discussed in the interest of the medical student.

Diseases of the Stomach.—A text-book for practitioners and students. By Max Einhorn, M.D., Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Hospital. Fourth revised edition. Octavo; 559 pages. Price, $3.50. New York: William Wood & Company, 1906.

This valuable work appears in its fourth edition, thoroughly revised and with several additions made. It contains a most practical and up-to-date presentation of a subject which is not exceeded in importance by any in the practice of medicine. The book has been written in the interest of the general practitioner, to whom it should appeal. The subject is approached from the practical viewpoint, and special attention is paid to diet and treatment. We commend the work to our readers with great satisfaction.

A Syllabus of Materia Medica.—Compiled by Warren Coleman, M.D., Professor of Clinical Medicine and Instructor in Materia Medica and Therapeutics in Cornell University Medical College, etc. Third

edition revised to conform to the eighth decennial revision of the U. S. Pharmacopeia. 16mo; 186 pages. Price, $1.00. New York: William Wood & Company, 1906.

On account of the numerous changes the text of this little volume has been completely reset. The rapidity with which the editions are exhausted shows that the book is appreciated. It is a handy book for ready refence in this department.

Retinoscopy (or Shadow Test) in the determination of refraction at one meter distance, with the plain mirror. By James Thorington, A.M., M.D., author of "Refraction and How to Refract," "The Ophthalmoscope and How to Use It," Professor of Diseases of the Eye in the Philadelphia Polyclinic, etc. Fifth edition, revised and enlarged. Fifty-four illustrations, ten of which are colored. 67 12-mo. pages. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1907.

This little book should be in the hands of every practitioner who attempts to do any work upon the eye. The present edition has been thoroughly revised and brought fully to date.

Stohr's Histology. — Arranged upon an Embryological basis. By Dr. Frederic T. Lewis, Assistant Professor of Embryology at the Harvard Medical School. From the twelfth German edition. By Dr. Philipp Stohr, Professor of Anatomy at the University of Würzburg. Sixth American edition, with 450 illustrations. 434 octavo pages. Price, $3.00. Philadelphia: P. Blakiston's Son & Co., 1906.

The rapidity with which the editions of this valuable work have been exhausted shows that a text-book of histology arranged upon an embryological basis has met a long-felt want and become a leader of its class. The additions and changes made by the translator seem to have struck the key-note of practicability. The text is well rendered, and the illustrations excellent. We must again commend the book to our readers.

Rhythmotherapy, or a Discussion of the Physiologic Basis and Therapeutic Potency of Mechano-vital Vibration; to which is added a Dictionary of Diseases, with Detailed Suggestions as to the Technic of Vibratory Therapeutics, with illustrative plates. By Samuel S. Wallian, A.M., M.D., Chicago. Price, $1.50; postage, 10 cents. Ouellette Press, 1906.

Mechanical Vibration as a remedial measure has won a very respectable recognition. The literature on the subject has been desultory and unsatisfactory. This author, with something of an iconoclastic spirit, sets out with a curt and incisive protest, in lieu of a preface, and at once plunges into his argument.

A "Dictionary of Diseases" intelligently discusses the technic vibratory treatment, and as a whole the volume is a valuable contribution to the subject. Its perusal will be interesting to those who have as yet given scant or no attention to the subject.

The Ear and Its Diseases. A Text-Book for Students and Physicians. By Seth Scott Bishop, B.S., M.D., LL.D., Honorary President of the Faculty and Professor in the Post-Graduate School and Hospital of Chicago; Surgeon to the Post-Graduate Hospital and to the Illinois Hospital, etc. Illustrated with 27 colored lithographs and 200 additional illustrations. Royal octavo; 440 pages. Bound in extra cloth. Price, $4.00 net. F. A. Davis Company, Philadelphia, Pa.

This book presents the diseases of the ear in a concise, plain, and copiously illustrated manner, for the use of the medical student, for whom it has been specially designed as a text-book. We heartily commend the book for its purpose.

Studies in the Psychology of Sex—Erotic Symbolism, the Mechanism of Detumescence, the Psychic State of Pregnancy. By Havelock Ellis. 6⅜x8⅞ inches. Pages x-285. Extra cloth, $2.00, net. Sold only by subscription to physicians, lawyers and scientists. F. A. Davis Company, Philadelphia.

In this volume of his series the author discusses the terminal phenomena of the sexual process preparatory to conidering in the concluding volume, the bearings of the psychology of sex in that part of morals which may be called "social hygiene."

The subject is approached from the very topmost plane, and culminates in the one physiological act in which two individuals are lifted out of all ends that center in self, and become the instrument of those higher forces which fashion the species, an act that can never be passed over as trivial or unworthy of study.

The author has made a brief study of "The Psychic State in Pregnancy," the point at which the whole process of sex reaches its goal.

These books are commended as interesting, instructive, and worthy of study.

CORRESPONDENCE

RECENT VIEWS ON THE TREATMENT OF UREMIA.

To the Editor of THE MEDICAL TIMES:

One of the most interesting chapters of Bouchards's last work is that in which he details his views on the treatment of uremia. He attacks the idea that the function of the kidneys can be supplemented by stimulating excretion by other channels. By these we eliminate only such toxins as are normally ejected through them, and of the urine only the water. This would be better employed by the kidneys, so that we really increase toxicity by increasing perspiration. But he fails to take into account the increase in the excretion of solids occasioned by diaphoretics. Pilocarpine, for instance, increases fivefold the solid excretion through the sweat, so that instead of removing only one-tenth as much as the same quantity of water would if ejected through the kidneys, there is fully one-half as much excreted in the perspiration.

Renal congestion may be lessened by the use of revulsives; reflex nervous irritability subsides under friction applied to the skin; and such drugs as digitalin and caffeine may act through the nervous centres. But when the excretory action of the kidneys is impeded drugs may be retained and drug-intoxication ensue. Digitalin only succeeds when heart weakness coexists. If given at all it must be in doses sufficient to accomplish the object, yet small enough to allow complete suspension of action before serious danger can result when evidence of harm appears. In gastrointestinal forms digitalis is of course contraindicated, but there is no reason for discontinuing pure digitalin, which is not irritant.

The almost stagnant blood in the portal roots may be forced into the general circulation to elevate the gen-

eral vascular tension and thus increase renal activity; by the use of cold enemas, by which grave anurias may be relieved; or by cold drinks, especially of milk. Urea, administered subcutaneously or intravenously, is one of the most powerful of diuretics.

Just as digitalin acts only as a diuretic when the heart is weak and the vascular walls so flabby that a part of the heart's force must be utilized in forcing them open, so digitonin acts only and exclusively in the contrary condition. If the tension in the renal arterioles is excessive, as when a patient is fully under the influence of digitoxin, the supply of blood is cut down until the urine may be totally suppressed. Here digitonin by relaxing this contractile spasm frees the renal circulation and restores the excretion. It is evident, therefore, that while both these foxglove derivatives are diuretic it is in totally opposite conditions, and that under no circumstances can they both be utilized at the same time in the same case. If given together the principle present in greater relative strength will exert its effect, *minus* that of the other; and the change of benefit being obtained lies in the change of such action coinciding with the corresponding pathologic condition. Since it is perfectly easy to ascertain whether vascular tension is above or below par, and digitalin and digitonin can each be readily obtained, there is no excuse or need for such hazards.

How about the stomach and bowels?

Vomiting lowers vascular tension and increases perspiration, and both are undesirable in urinary deficiency. Purgatives remove water, and this also, Bouchard claims, should be retained to pass out of the body by way of the kidneys, by which route it would have removed fifty times more of the toxins than it could through the bowels. The latter also remove some of the toxic matter from the cells and the blood, as well as very much that would else have been absorbed from the bowel to pass out through the kidneys. But care should be taken to at once restore the lost water.

Bleeding? With thirty-two grams of blood we remove half a gram of extractives; the urine in each twenty-four hours removing eight grams. We may thus keep the toxins below the fatal dose—the killing point. This is our most effective measure, for thirty-two grams of blood remove as much as two hundred and eighty grains of liquid diarrhœa or one hundred of sweat. Bleeding is best for acute nephrites like those occurring from scarlatina, where the emergency is but temporary. In chronic forms it is only applicable in emergencies, to delay death.

Chloroform, chloral and the bromides (never that of potash), are useful only in the convulsive forms, such as eclampsia, not in the comas. All potash salts should be excluded, even the nitrate.

Of all the weapons herein named, we have left, therefore, only bleeding for certain contingencies, and the milk diet. Yet something may be done in the way of pathogenic therapeutics; some indications met by recognizing the sources of the uremic poisons—disassimilation, hepatic products, alimentation, and intestinal putrefaction.

Can disassimilation be delayed by arsenic and valerian, which lessen nutritional metabolism and thus save wear and tear? But here the disease has already done this, to such an extent as to cause subnormal temperature, toxin-accumulation checking osmosis. Any further impediment to oxidation tends toward death, for the specially dangerous toxins are due to suboxidation. Increased metabolism by oxygen inhalations reduces the toxicity; and this has been advised.

We can lessen the secretion of bile by the milk diet; by saline purgatives wash out the bile formed; or, as the toxic part of bile lies mainly in the coloring matters, we may remove them by giving enough charcoal.

The proportion of toxins derived from the food may be diminished by the use of such foods as are poor in its principal toxic element, potash. Give foods quickly and easily digested and absorbed, foods poor in extractives and potash, which do not supply to intestinal putrefactive agents materials suitable for their noxious work—avoid meats and give milk, with egg-white, cheese or even boiled meats if necessary, but no soups.

Lastly, we prevent intoxication from intestinal putrefaction by reducing the intake of putrescible material; by favoring the formation of hard, dry fecal masses from which absorption will be the minimum; in other words, by milk diet. We can fix the toxins in the bowel and prevent their absorption by the administration of charcoal; and directly oppose putrefaction by inducing intestinal antisepsis. For the latter purpose he advises iodoform, charcoal, naphthalin, and bismuth salts. Bouchard says: "I myself have seen, in one case, formidable uremic dyspnœa disappear within twenty-four hours after the administration of napthalin."

On strictly *a priori* grounds, Bouchard requires that the ideal intestinal antiseptic shall be insoluble, in order that it may pass through the alimentary canal so as to be present and active in the large bowel, where its service is most needed. With this we cannot agree, for the following reasons: All agents acting chemically must be in solution or they are inert. Charcoal acts solely through its remarkable power of absorbing into its bulk gases, alkaloids, coloring and other matters. These are held by the charcoal and ejected with it from the body. The sulphocarbolates in solution may be absorbed from the upper bowel, but they are in large part thrown back into it and appear in the feces. Their administration is followed by deodorization of the stools, with corresponding improvement in the condition of the patient in a manner too decided and invariable to admit of any but a causative explanation. Their use entails no danger to the patient whose renal elimination is restricted, or to the blood if they should be absorbed in large quantities. Being effective, safe, cheap, and (when chemically pure and taken in hot water) practically devoid of objectionable taste, they afford advantages not offered by any other intestinal antiseptic as yet presented.

Bouchard says that charcoal presents many advantages, but it must not be forgotten that this substance is totally insoluble, and that it is apt, if given in large quantities, to form obstructing masses in the bowels, which are not acted upon by any solvent that can be administered. To avoid this danger, and because the sulphocarbolates are quite as effective if not more so, pleasanter to take and easier to administer, while agreeing with Bouchard in his general conclusions, we do not agree with him in his choice of agents to effect the desired ends. When the profession awakes to the efficiency and utility of the sulphocarbolates and gives them its endorsement, as it surely will, the lesson we have inculcated these many years will have been mastered.

Croftan views the matter in a different light. He believes that uremia should be assigned to insufficient action of the liver rather than to renal defects. The liver produces urea, and intercepts and turns back absorbed toxins into the bowel for elimination. To these the bitterness of the bile is due. Uremia he interprets as due to a crippled liver with low renal activity. The liver is crippled by excessive absorption of gastrointestinal toxins; and a rational treatment is to reduce the labors of the great gland by non-irritating diet—and here he coincides with Bouchard in advocating the exclusive use of milk. After a period of hepatic rest he applies mild stimulation by giving salicylates and the bile acids, admitting the possibility of benefit from calomel also.

Both writers, however, are playing the play with Hamlet omitted. No single remedy compares with veratrine in this malady. In the acute forms like eclampsia, it behooves the physician to act quickly and limit the damage that is being done to the delicate nervous tissues. One man advocated two dram doses of tincture of veratrum, and another reported to the writer that he invariably gave hypodermically a dram, repeating if necessary. Imminent peril demands quick and powerful intervention, and nothing except possibly bleeding as well meets the need. Merck gives the maximum single dose or veratrine at gr. 1-12, and the maximum daily dose at gr. 1-3, but the need must regulate this, and quick repetition soon indicates the proper quantity for the case. No one who knows eclampsia by personal experience will fear veratrine after he has become familiar with it.

In non-acute forms also veratrine is worthy of confidence, since it acts on all the excretory organs and opens up elimination as no other remedy does, at the same time relaxing arterial tension to any desired degree. Small doses are best—gr. 1-134 well diluted every one to six hours, as the effect on the pulse indicates. To the physician who has learned to value elimination properly, veratrine gets to be a daily resource; sure, safe, unfailing, most easily given and controlled.

W. C. Abbott, M.D.

Chicago, Nov., 1906.

SANITATION AND TUBERCULOSIS.

To the Editor of the Medical Times:

An esteemed medical journal characterizes as the height of asinimity a local health ordinance which forbids barbers to shave consumptives in their shops. We fail to see where the asininity appears. A consumptive, at least in any tenable legal sense, means a person who is discharging tubercle bacilli in the sputum. A person may be tuberculous and yet not have any demonstrable route of elimination of tuberculous débris, but such a person certainly could not be proved to be tuberculous so far as any sanitary laws based on the theory of infectiveness are concerned. We do not believe that tuberculosis is a highly contagious disease comparable with the exanthemata, but we do believe that its real cause is the tubercle bacillus and that no combination of predisposing causes, such as catarrh, anæmia, hereditary predisposition and general depression, is competent to produce the disease. We may go farther than this: many animal parasites are capable of producing disease only in certain stages of existence or when injected by an intermediate host but, so far as we are aware, any vegetable germ is always in a condition to produce infection, unless it is dead or of feeble virulence, granting, of course, that receptive conditions are favorable to its invasion. We also believe that Nathan Raw and other investigators have shown that there is this element of truth in Koch's sweeping statement as to the inability of bovine tuberculosis to produce human disease, viz.: that the tubercle bacillus cultivated for generations in one animal is, usually, especially virulent toward that species and that, in the human, we have two rather distinct varieties of tuberculosis, one locating in the lungs and due to infection with the human variety of bacillus and one locating in the intestine, joints, connective tissues, etc., and due to the bovine variety, though such a distinction cannot as yet be held to be absolutely proved, and it probably will not be proved to apply to all instances.

For practical purposes, tuberculosis in the human being means consumption in at least 80 per cent. of all cases; and probably 90 per cent. of all cases of human tuberculosis are due to bacilli pretty directly derived from human sputum. In any individual case, it is almost impossible to ascribe a case of tuberculosis to a single, specific infection. This is due to the frequency of the disease, the lack of quarantine measures and the insidiousness with which the disease develops. But, after all, it is largely a matter of habit that leads us to adhere to the theory of personal contagion in measles and to be sceptic as to a personal source of tuberculosis. For instance, John Jones, Sr., works in the same shoe factory as William Smith, Sr., who is a consumptive. If John Jones, Sr., develops tuberculosis and it occurs to some physician or sanitarian to question the advisability of allowing men like William Smith, Sr., to work in places where they may infect their fellows, there are plenty of sceptics to ridicule the notion and to ask for proof that John Jones, Sr., did not receive his tubercle bacilli from some unknown source in street dust. But, if Johnny Jones, Jr., plays with Willie Smith, Jr., who has measles and, within a week or ten days, "comes down" with the same disease, there being no other known cases among his schoolmates and playmates, no one seriously questions where he got his measles. As a matter of fact, we can no more prove, scientifically, the latter supposed route of infection than the former unless we can absolutely exclude the existence of measles in the region for years previously as well as other recent sources of importation. We are also likely to forget that being able to name the person from whom an exanthem is contracted and being unable to name the one from whom tuberculosis is contracted, has nothing to do with the matter of communicability nor with the importance of checking all sources of germs of disease.

As we have already said, we fail to see why it is asinine to prohibit the use of public barber shops by consumptives. Persons expectorating tubercle bacilli are certainly likely and, in the long run, almost certain, to have bacilli lodge in mustaches, beards or even in the stubble for which they have recourse to the razor. Barbers are not, as a rule, a class who can be depended upon to use careful asepsis and antisepsis by heat, of such perfection as to kill such bacilli as may be

present. To our mind there is nothing asinine in the assumption that brushes, combs, lather brushes and razors may transplant such bacilli to previously healthy persons. We are personally asinine enough to believe that it is conceivable that such bacilli may actually be implanted in a razor wound or within the beginning of the respiratory or alimentary tract by a daub of the lather brush and that bacilli thus implanted stands just as good chances of growing as if they had been implanted experimentally in an animal of the same resistance as the person in question, or as if they had reached the same parts of another human being by purely accidental means. We would not go so far as to claim that it was suicidal to be shaved or to have one's hair cut with the same utensils just used for a consumptive, but we do claim that such utensils are likely to be infected and that, if infected, the bacilli which they convey are just as apt to grow as others which come from some unknwn and practically unavoidable source.

Entirely aside from the direct danger of implantation of tubercle bacilli in shaving and hair cutting, barber shops are usually not too well ventilated and they are places where all sorts of persons are thrown into close and rather prolonged contact, where expectoration is frequent and not confined to properly disinfected cuspidores. All modes of possible infection by dust, dried sputum, contact with towels, etc., are present to a considerable degree. In other words, the barber shop is just to type of meeting-place for humanity, from which persons with any communicable disease ought to be excluded. It may not be feasible, at least for many years to come, to insist upon a rigid quarantine against tuberculosis and, until this theoretic desideratum is attained, it is impossible to prevent consumptives from attending church and theatre, where there is a very trifling danger of contagion, if the filthy habit of spitting on the floor is stopped and to exclude them from vehicles, hotels, toilet rooms and other necessary public places.

The exclusion of consumptives from barber shops deprives them of no absolute necessity, for they can be shaved and their hair can be cut at home. Meantime, such legislation removes one element of possible danger and it has an educational value by pointing out to consumptives, their friends and the public generally, that a tuberculous discharge is a source of danger.

It is possible to draw an approximate, arithmetical comparison between tuberculosis and the exanthemata, so far as communicability is concerned. Barring immunity by hereditary of an exanthem or by heredity of its antiparasitic substances from a mother recently the subject of the disease, immunity established artificially by vaccination, and natural immunity of rare and unexplained nature, the susceptibility to a first attack of an exanthem is nearly 100 per cent., the susceptibility to a second attack not much more than 0 per cent. and the mortality about 10.20 per cent., excepting for varicella, German measles, etc. Exclusive of persons dying of violence, the susceptibility to tuberculosis is shown by all statistics of civilized countries to be 12—20 per cent. and there seems to be just as great susceptibility to subsequent attacks, excepting that we must consider the extreme rarity of a chance for reinfection, owing to the high mortality of tuberculosis—75—90 per cent. From a purely theoretic standpoint, we may say that the susceptibility of tuberculosis is nearly 100 per cent., but that, in the majority of cases, the disease does not cause clinically recognizable symptoms. It is impossible to define just what constitutes a single exposure or to state what risk attends such an exposure. The chance of contracting tuberculosis from any single, ordinary, brief association with a consumptive is certainly very slight, while similar association with a person having an exanthem is considerable, perhaps 50 per cent. In the long run, owing to the immunity conferred by an exanthem, we may easily calculate the infectiveness of an exanthem to be about 5—8 times as great as that of tuberculosis. On the other hand, the census statistics show that all of the exanthemata together cause only about a fifth of the deaths ascribed to tuberculosis. In fact, tuberculosis, in its various forms, causes at least a tenth of all deaths, including those due to weakness at the extremes of life, accident, violence, surgical intervention, etc. Of the causes of death that may fairly be included under the term disease, it is responsible a quarter or a fifth.

It is the tremendous importance, quantitatively as well as qualitatively, of tuberculosis, its enormous expensiveness and high mortality, that inclines us to welcome every measure to lessen its frequency. A precaution that will prevent one case in a thousand is of as great importance as one that will eradicate an entire disease like Rotheln or varicella. And any inconvenience or suffering imposed upon a consumptive is counterbalanced and more than attoned for, by saving another person from the disease.

B.

The prophylaxis of senile cataract is dwelt upon by O. Wilkinson (*Gaillard's Southern Medicine*), who would not permit a patient with incipient cataract to go untreated until blindness is fully developed. He concludes, after an exhaustive study of cases, that cataract is a result of a disease of the eye, or some constitutional disorder, which should be treated as is any other disease. He does not look upon the cataractous lens as an excessive change due to age; the changes are chemical, not morphological. The treatment of the cataract should be both constitutional and local. Any condition that is found to be interfering with the patient's general health should be attended to. Every organ that may possibly be the seat of disease should be examined; gouty rheumatic or lithæmic conditions should be sought. The digestive system is one of the most frequent sources of systemic poison. Alteratives, tonics and a free use of lithia and other alkaline waters are recommended. Iron, quinine, strychnine, or gentian may be indicated. Exercise in the open air is essential. There may be associated ocular diseases; errors of refraction and accommodation must be corrected. A proper lens does more than any other remedy for low-grade inflammations of the uveal tract. These patients should use their eyes sparingly; for the cataractous organ must be considered a diseased one, requiring rest. The preventive phase of cataract treatment has, in Wilkinson's opinion, not yet received its full share of attention. (We are glad to note here the expressions of an ophthalmologist who evidently realizes—as does not every one—that the eye cannot be treated as an entity separate from the rest of the organism, but that successful treatment of it requires a respectful consideration of general systemic conditions.)

RETROSPECTIVE

The Opsonic Index is obtained by the following method (*Jour. A. M. A.*, June 9, '06): A certain amount of the patient's serum is mixed with the same amount of a suspension of blood corpuscles, washed three or four times in physiologic salt solution (to remove all traces of plasma or serum); to this mixture is added a small quantity of a homogeneous suspension in salt solution of the particular bacterium on which we wish to test the opsonic power. The mixtures for the control tests are made precisely in the same way, except that in one the serum of a normal person is substituted for that of the patient, and in the other the serum is replaced by physiologic salt solution. After thorough mixture of the ingredients these mixtures are placed at 37° C. (98.6 F), for about 30 minutes, when smears are made and stained. The average number of bacteria taken up by the leucocytes is determined by counting the number of bacteria in, say, 40 leucocytes from each mixture and dividing the total number of bacteria obtained in this way in each case by the number of leucocytes counted. The opsonic index is the relation of the number of bacteria taken up by the leucocytes in the mixtures containing the patient's serum to the number taken up by the lecocytes in the mixtures containing the normal serum. This explanation is illustrated by the following:

(Average phagocytosis, 40 leucocytes counted.)

1. Serum of tuberculous patient 0.1 c c + washed blood 0.1 c c + suspension of t.b. 0.1 c c..... 3
2. Serum of normal person 0.1 c c + washed blood 0.1 c c + suspension of t.b. 0.1 c c..... 4
3. NaCl. solut. 0.1 c c + washed blood 0.1 c c + suspension of t.b. 0.1 c c..... 0.1

In this case the opsonic index of the tuberculous patient is .75 (3÷4=.75); if the figures are reversed the index will be 1.33 (4÷3=1.33), as compared with 1, the normal index. The result indicated in the third mixture emphasizes the fact that in the absence of serum there is very little phagocytosis. One must make sure that the corpuscles used have been washed quite free of serum; and this is the reason for the third mixtures.

The blood is obtained easily from the lobe of the ear, a few drops being collected in a small u shaped tube that is centrifugated in order to free the corpuscles from the plasma which is withdrawn with a fine pipette. The corpuscles can now be washed in salt solution. In order to prevent all clotting a small amount of citrate solution may be mixed with the blood, but this is not essential. The point is that the various mixtures must be so made that the results are comparable. The mixing may be done in small pipettes marked so that the same quantity of the various ingredients may be drawn in. After mixing thoroughly by drawing the fluids in and out, the pipette with contents is placed in the incubator. It is quite impossible to describe all the details which must be learned by practical work in the laboratory. Thus, the preparation of uniform suspensions of tubercle bacilli requires special methods (Wright, *Lancet*, 1904, vol. ii., p. 1138). In the case of other bacteria the main points are to secure uniform suspensions of proper density. If too many bacteria are present, the leucocytes may be so crowded with bacteria that the latter cannot be counted with accuracy.

Eclampsia.—Clark (*Jour. Gynec. and Obstet.*, July, '06) very wisely counsels that, as the first step in the prophylaxis of puerpural sepsis, women should engage their physicians early in pregnancy; and that the latter should examine carefully the condition of the kidneys, among much else to which he should attend. The patient must measure carefully the quantity of urine passed and must send samples at least once a month; she must notify her adviser at once of persistent headache, difficult vision, nausea, diarrhœa, marked anæmia and œdema, especially of the hands and face. With the development of these symptoms or any one of them, the patient is given a saline and is put at once thereafter on a milk diet with large quantities of water. Improvement, especially in the condition of the urine, will justify the addition of some of the more easily digested starchy foods. With severity of these symptoms despite this treatment, rest in bed is indicated, with daily warm baths and at times hot packs. If the case still progresses unfavorably labor must be induced without delay. Where labor comes on without convulsions, though these be threatened, chloral is administered as conditions indicate. If the urine during labor is very albuminous such measures should be adopted as in the presence of convulsions—operative delivery, saline purgatives, hot salines subcutaneously and hot packs. If marked albuminuria and toxemia appear early in pregnancy Clark believes that the uterus should be emptied; and on general principles his position is sound.

Blair believes that a toxin or a series of toxins manufactured by mother and fœtus, and not properly eliminated by the kidneys, is the chief cause of eclampsia (*Liverpool Medico-Chir. Jour.*, July, '06). The mortality is from 18 to 42 per cent. for the mother and 50 per cent. for the children. It occurs once in 330 labors in England; once in 260 labors in the United States; and is more frequent in cases of illegitimacy. It is commonest in primiparæ, in protracted labors, in neurotic temperaments, in multiple pregnancies. The onset is from the eighth month to the end of pregnancy, though it may occur at any time after conception, or during the puerperium. Prodromal symptoms are albuminuria (with low specific gravity), visual disturbances, vertigo, headache, drowsiness, depression, epigastric pain, jaundice and vomiting late in pregnancy. There is a preliminary stage to the eclamptic attack, manifested by convulsive movements of the face, head and arms, etc., which last for a few seconds to a minute or more and are followed by a tonic stage—rigidity, with the head drawn backward and the posture of opisthotonos. Respiration ceases for some fifteen to thirty seconds when a clonic stage of general convulsive movements intervenes. The coma becomes more profound as the fits increase in number, the pulse becomes weak and intermittent, and the temperature has a tendency to rise. The diagnosis from epilepsy is made by the absence of eclamptic prodromata, nor is there a steady increase of temperature; from hysteria, which is characterized by the rationality of the convulsive movements, the absence of respiratory spasm, and the passage of larger quantities of urine; from alcoholism and from disturbances of the central nervous system. Blair's prophylaxis coincides with that of Clark. He would during critical periods give morphine hypodermically, and would use chloral in large doses. Chloroform will relieve spasm, but is rejected as a routine measure. Hot salines may be given by hypodermoclysis, or by the bowel; transfusion may have to be practiced. Venesection may be essential (v. editorial in this issue of THE TIMES). Lavage of the stomach and hot packs may also be appropriate.

Excision of the right lung for tuberculosis of that viscus has been successfully done by J. L. Stretton (*Lancet*, July 21, '06). The patient, aged 28, had definite involvement of the right lung with characteristic symptoms. Under ether an incision three inches long was made, with its centre over the third rib, two inches from the sterum. About four inches of this rib was removed. The pleura was found everywhere adherent; the adhesions were loosened carefully with the hand as far as the rib. The portion of the lung above was then surrounded with a serrenœud and cut away, leaving a stump the size of a five shilling piece. For twenty-four hours thereafter the patient was in a state of collapse. During the next few days there was much hemorrhage both from the wound and from the mouth. On the seventh day hemorrhage ceased, but symptoms of sepsis intervened which required a counter opening in the back, through which a large drainage tube was passed. The wire came away on the eighteenth day and recovery was uneventful. The wound was entirely healed three months later. Soon after this all cough and expectoration ceased. The excised portion of the lung was tuberculous and contained a cavity. Six months later the patient was reported well.

Constitutional gout and acute attacks of gout are two essentially different things, declares Roethlisberger (*Jour. A. M. A.*) The uric acid diathesis exists permanently; and on this soil the acute attacks develop. But the latter are infectious and more like acute articular rheumatism. If the big toe happens to be affected we speak of acute gout; otherwise of acute rheumatism. But these acute attacks are identical in nature. Uric acid retention seldom occurs in the young. To the resistance to infections enjoyed by those in and after the prime of life this author attributes the accumulation of immunizing substances within the body. The periodicity of recurrent gout may be due to some transient immunization left from one attack, which dies out in time, leaving the way clear for renewed infection. The necrosis resulting from the compression of the accumulating urates offers a favorable soil for the development of an infectious process, which is certainly indicated in the local phenomena of an acute attack. Some infection, generally autogenous, can generally be learned in the history of a case of gout. Oftentimes the acute attack is preceded by digestive disturbances, catarrhs, bronchitis, influenza, erysipelas, or pneumonia. Not rarely premonitory pains in the limbs, palpitations and the like point to some intestinal or other focus of infection. The germs are not very virulent; nor does such a process result until after the organism has been depressed from some cause. Acute gout develops most in the spring and fall and no doubt bears a relation to the catarrhal affections of the upper air passages frequent during these seasons. Severe purging may bring on gout, probably from some superficial lesion of the intestinal epithelium. Another reason of the infectious nature of acute gout lies in the frequently swollen lymphatics on the affected limb which can sometimes be traced up the leg to the groin, where enlarged glands can be palpated. In treatment the elimination of uric acid should be favored; steps most efficacious in kidney affections should be taken. Search must be made for the focus whence arises the acute infection. Salicylates may be appropriate as antiphlogistics and also as antiseptics, which latter may have to be injected directly into the affected joint. Plenty of water must be taken. This author has successfully used Bier's artificial hyperæmia. The intestinal tract must be disinfected. Natural sulphur waters may be found beneficial; acting as diuretics they are particularly useful in the uric acid diathesis. Sulphur internally is recommended; as also guaiacum and hydrochloric acid. All measures to stimulate metabolism and eliminate urates are indicated.

Echinococcus cyst of the liver with a differential consideration of tumors of this organ is the subject of an important paper by R. T. Fowler (*N. Y. State Jour. Med.*, July, August, '06). The first symptom is the presence of a growth in the liver region or a feeling of pain, discomfort or dragging on the right side. If the tumor is on the superior surface there may be discomfort in breathing. There is regularly enlargement of the organ. Pressure on the neighboring viscera results in symptoms referable to them. There may be interference with the action of the heart and lungs; jaundice; œdema of the lower extremities if the vena cava be compressed; or ascites if the portal vein be compressed. The hydatid fremitus is not obtained very often. Santoni's sign is, if present, most valuable; this is obtained by ausculatory percussion, and consists in the production of a low toned sonorous sound, similar to that obtained by striking a membrane stretched upon a metallic frame. In diagnosing the condition, everything involving a tumor or increase in size of the liver must be taken into account—hepatoptosis, syphilitic cirrhosis, accessory lobes, carcinoma (primary and secondary), sarcoma, angioma, odenoma and abscess. Fowler condemns all procedures involving tapping of the cyst and injection of antiseptics. The only correct operation is hepatotomy (in either one or two stages), evacuation of the contents, and excision of the living membrane.

The cost of medical education in England is computed by *London Standard*. On entering one of the large medical schools in the metropolis the bare fees will amount to £30 per annum, with an addition for the first year of £20 as entrance fee—£170 to cover the five years. In addition there are fees for certain necessary practical classes and material up to fifteen guineas; books, instruments and the like will require £30 more. Forty guineas must be added for examination fees; the official register fee is £5; pocket money and lunches in town mean £30 more annually; clothes, board, lodging, etc., will cost £100 a year. So that if the student is to get through his five years he must expend nearly £900—an equivalent of nearly a thousand dollars a year. There are a great many people absolutely unqualified to practice medicine (such is the state of the law in England, as it is largely with us), who nevertheless escape this expense and labor, and practice as a physician, accepting fees. Such fees, however, cannot be recovered in the courts.

A Sanitary Campaign in Cuba.—The recent little unpleasantness, so typical of Latin communities, bids fair to have one very good result. No doubt the Pearl of the Antilles, while temporarily in the hands of our government, will receive a thoroughly antiseptic housecleaning. Dr. Barnet, chief executive of the

Cuban health department, has been told by Governor Taft to use whatever money is necessary for making Cuba sanitary and stamping out yellow fever. To this end sanitary brigades are being stationed, with ample oiling and disinfecting facilities. There are now three cases of yellow fever in Havana—the only ones on the island. Nor is any epidemic threatened. But precautions are urgently necessary, both on behalf of Cuba and in order that the States may not be visited with an epidemic. The disinfecting force in Havana has been increased from seventy to two hundred men; and its oiling brigade is being increased to a like number. Two hundred men have been set to work at Camp Columbia, quickly and thoroughly to prepare, by disinfection and mosquito extermination, for its occupancy by American troops.

The Hearts of Athletes.—Some comparisons were made at the recent Olympian games respecting the size and stamina of the hearts of the various competitors. The examining physicians examined the hearts of the Germans before the games and premised that they would not be very formidable rivals. The size of their hearts was so abnormally great that in contests requiring strength, energy and endurance it was physicially impossible that they could succeed. The results showed this to be true; the few German athletes who won places were the possessors of small hearts. Most of the hearts of the American athletes were, on the other hand, of smaller dimensions than the smallest heart this examiner had ever measured in a German hospital. An invincible sprinter possessed the smallest heart among the Americans. The English hearts were found to be slightly larger than those of the Americans, but smaller than those of any other nation.

A very mild type of smallpox, seldom resulting fatally, has developed in England, according to official statistics recently published. Until the English law compelling medical men to report all cases, precise statistics as to smallpox among the general population were not available. But in pre-vaccination days the hospital mortality was up to 30 per cent. Until about three years ago, and after the notification act was passed, the deaths were up to 14 per cent. of the cases notified. In 1903, however, the percentage dropped to 5.6, in 1904 to 5.5, in 1905 to 3.2; and apparently it is still going down. In some epidemics, as at Oldham, two types, a severe and a mild, occurred in different series. But the severe type soon died out. The scientific explanation of the mild type is undoubtedly that, in conformity with the rule in all other infections, the virulence becomes attenuated with time.

Major Pilcher recently won the Enno Saunders medal by his prize essay, "The Training of the Medical Officer of the State Forces to Best Qualify Him for Local Service and for Mobilization with National Troops." His essay declared, in part, that even more important than therapeusis is prophylaxis, the latter being perhaps the most difficult duty of the National Guard Surgeon. A single bit of sanitary neglect will open the door for a thousand misfortunes. "The most important study, then, of the physician to whom the duties of military service may come is military hygiene and sanitation." The work of the medical officer of the State forces is more of a novelty to the newly commissioned surgeon than the professional work of the specialist. "He should remember that he is now a military man, and should not fail to qualify himself properly to fill the new position. He must learn to command men, not only those of his hospital corps, but the sick. The title of 'Doc' or 'Doctor' must be absolutely rejected, and he and his men must learn that the military salute and proper deference to rank are essential features of military service."

A Philippine Bureau of Science is a consolidation of the Bureau of Government Laboratories (which has existed for four years) and the Bureau of Mines. The work of the consolidated bureau will cover the investigation of general chemical and biological problems involving bacteriology and immunity; the production, improvement and standardization of sera and prophylactics; pathology; the etiology and treatment of tropical diseases; botany, entomology and a study of the anifauna of the islands and chemical questions relating to their natural products and resources; geology, paleantology, mineralogy, mines and mining engineering. The research work, which formerly was set forth in bulletins, now appears in the excellent monthly *Philippine Journal of Science.*

Nearly a million deaths were due to the plague in India in 1904, states the Sanitary Report just published in England. In every one of the nine years of the present epidemic, save 1900, there has been an increased death rate; in 1904, for instance, there were 251,525 more deaths than in 1903. This epidemic has destroyed more than three and a quarter million lives. The report devotes much space to the measures adopted to check this dreadful disease. Disinfection has been found of little use. The campaign has been directed mainly against the rat. But here the difficulty is enormous, for a religious tenet must be dealt with that forbids the holder to leave an infected place, with a tenderness for animal life that will not sanction the destruction of a deadly serpent, with ignorance that is convinced that plague is introduced and fostered by government in order to reduce the redundant population, with suspicion that sees the disseminating agents in every disinfecting party, or with timidity that may be turned by an ill-considered action into fanatical frenzy. Among the natives there is a higher female death rate than among males; while Europeans, who live in well built, airy houses, are seldom attacked. Dealers in grain are nearly always among the first victims. In one town the rich and the very poor escaped, while the middle classes lost heavily. Wherever the rats were destroyed there was immunity or comparative immunity from the plague.

"Habit spasms" in children are considered in an excellent paper by Still (*Lancet,* Dec. 16, '05), who prefers this term as being more descriptive than "tic." The most frequent form is rapid blinking or a more forcible closure of the eyelids. Next come various movements of the face, most often a twitching of the nose. Head jerking movements were present in one-third of his cases. The limbs were less commonly affected, the upper more frequently than the lower; the commonest movement was a sudden elevation of one or both shoulders. Trunk movements were very uncommon. A form much affected is the frequent repetition of some particular sound such as would be made in clearing the throat, or a more obvious "hem," or some syllable or word which

the child utters in and out of season. These habit spasms may occur singly or in groups, constituting, as it were, a habit clonus. These spasms are limited to different parts at different times; and the tendency is for one form to change into another after a varying period. A useful diagnostic point is the frequent diminution or total cessation of the spasm while the patient is under special observation. Sometimes these habits are associated with psychic disorders. The sexes are almost equally affected; most frequently between the sixth and eighth years (although commonly enough between the fifth and the tenth). Disturbed sleep is very frequent in these children; headaches, enuresis, nervous diarrhœa, stuttering and urticaria were observed; convulsions characterized 7 per cent. Habit spasm is apt to be mistaken for chorea. Treatment requires rest from the worries entailed by school life; the elimination of all sorts of local irritation. Arsenic and bromide mixtures are appropriate; as are sometimes ergot and valerian. Oftentimes a complete change of environment affords the readiest means of cure.

Syphilis and Myopia.—There are two kinds of myopia: one, simple, stationary or slowly progressive until the 25th year; the other, complicated, sometimes called malignant, pathological or inflammatory. Those who are engaged in examining the eyes of school children for errors of refraction should observe this distinction. De Lapersonne (*La Presse Med.*) discusses the many causative factors which obtain in malignant myopia—heredity, age, school work, light, etc. There are both superficial and deep orbital lesions which cause myopia or favor its development. Syphilis should always be borne in mind. Not only should glasses be prescribed, but the general health should also be looked after, with mercurial medication when needed. Perfect correction of any associated astigmatism and rest of the eye are also essential, since the patient is liable at any time to macular hemorrhages or detachment of the retina.

The Sterilization of Tuberculous Sputum.—Kirkland and Patterson describe the method employed in the Brompton Hospital (*Lancet*, Aug. 18, '06). An iron vessel is provided with a movable lid, and has at its bottom two steam jets so arranged that a circular motion is given to the contents. The sputum having been poured into this vessel, the lid is screwed down and steam enters up to a pressure of fifteen pounds; this induces boiling, which is kept up for twenty minues, after which it is allowed to cool to 100° F. It is then emptied into the drain by opening a valve properly arranged at the bottom of the sterilizer. For cleansing the sputum pots a large tank is employed having the necessary valves for admitting water and steam and a valve in the bottom of the tank through which the contents could be emptied into the drain. Inside the tank is a cage which can be raised out of, or lowered into it, at will; this cage is constructed of brass tubes framed and braced together. On the horizontal tubes the sputum cups are suspended by their handles and the covers of the cups are placed in suitable trays provided in the cage. For sterilization and cleaning the cage full of soiled sputum cups and covers is lowered into the tank. Water is admitted into the tank and boiled by the admission of steam; after boiling twenty minutes this water is emptied and the process is repeated. The cage is then raised and the cups and covers are removed. Much less handling of the cups is thus required, and the cleansing of both cups and covers is found to be more thorough than when done by hand. There is also much saving of time which could be devoted to washing handkerchiefs. These are conveyed from the wards in covered pails; and are at once placed in the sterilizing and washing machine. After washing they are taken out and placed in the hydro, which, with the calender, is in a separate room. After being dried in the hydro they are passed through the calender and are then folded and returned to the wards.

Our surgical brethren are doing great things these days if we are to believe everything we read in the lay press. For instance, Prof. Gasse, of Breslau, has been transplanting blood vessels and organs from one body to another. In the case of a four-year-old urchin, parts of his mother's thyroid was transplanted to his spleen. The child, after nine months, is developing, mentally, and can walk and talk. "The operation is simple," the reporter assures us. In another case Gasse removed vessels two and one-half inches long from a live animal and transplanted them, as also blood vessels from animals that had been dead for an hour and a half to living animals. While, in human beings, it is impossible to transplant large blood vessels, they can be taken from freshly amputated limbs and transplanted to subjects from whom large tumors have been removed, or in cases where ligaturing large blood vessels has threatened the parts supplied by them with tissue death. Gasse has also transplanted kidneys from one animal to another, the replanted organ performing its functions perfectly. We await corroboration in the usual professional channels.

The Manhattan Eye, Ear and Throat Hospital recently opened its very imposing new structure in East Sixty-fourth Street, New York City. It is six stories high and occupies five large lots. Its foundation and steel work are capable of supporting a nine story building, and three more stories will ultimately be added. The cost of building, land and equipment is at least $700,000. The west wing contains the wards for the eye patients, and the east for the ear and throat patients. There are sun balconies at the end of each ward for convalescents. The top floor contains the ear and throat operating rooms; also the laboratories for pathological, microscopic, photographic and X-ray work. There are twenty-seven rooms for private patients, for whom a special entrance and elevator are designed. There is a special ward for the treatment of contagious eye diseases; it has its own staff and is cut off from the rest of the building by special doors. Quarters for the nurses are on the top floor.

The tyranny of the young person will have full sway if a lady named Mrs. Ingalls, of Hartford, Conn., succeeds in her purpose. In an address on "anti-narcotics" she declared that "the boy must have a chance" to which end "we must first clear the home of his father's cigar, of his pastor's cigar, of his teacher's cigar, of his big brother's pipe, of his sister's soothing syrup, and of his mother's headache powders." His aunt's cigarette should not be overlooked in this general house-cleaning, in which all the world is to be made unhappy in behalf of the small boy. We fear that arch tobacco furnace, Mark Twain, whose rule is never to smoke two cigars at one and the same time, must have set a most

pernicious example to the town of Hartford, in which he lived for many years.

Primary Tuberculous Meningitis.—H. W. Cheney reports in *Pediatrics* the instructive case of a boy aged three, of healthy parentage, but with a family history of tuberculosis. He had had no previous illness. Persistent vomiting was the most marked early symptom. A diagnosis was not positively made until the 15th day, and death resulted on the 24th day. No tubercle bacilli were found in the fluid obtained by lumbar puncture at first, but a guinea-pig inoculated with it died of tuberculosis. The bacilli were found in the cerebrospinal fluid on the 21st day. The brain presented characteristic post mortem changes. The mesenteric and peribronchial glands were microscopically normal, no evidence of tuberculosis was found in any other organ. It is not stated, however, whether the naso-pharynx and middle ears were examined; there might have been tuberculous foci at these sites.

The Treatment of Modern Bullet Wounds.—The *Post-Graduate* recounts an interesting and far-reaching experiment which was performed at the battlefield of Mukden. Out of 100 soldiers wounded in the abdomen, laparatomy was done upon fifty; the other fifty were left alone, with only absolute rest and cleanliness of the external wound. Forty of the cases operated upon died; of the others forty survived. As a result of this experiment laparatomy was afterward hardly ever performed; but strict care was taken that all soldiers wounded in the abdomen had absolute rest for the first three days.

Pulmonary Tuberculosis and Obstetrics.—F. H. Washburn (*Am. Med.*, June, '06) finds that active pulmonary tuberculosis and pregnancy constitute a dangerous complication; that pregnancy exerts an unfavorable influence on the former, both immediately and remotely during the puerperium. Measures should be taken to prevent pregnancy in women actively phthisical. There are occasional indications for interrupting pregnancy in cases of tuberculosis; such cases are best treated in special institutions which should be provided.

Endocarditis.—Beverly Robinson (*Am. Jour. Med. Sc.*) finds that salicin neutralizes the poison of rheumatism, and shortens the disease; he believes that there is no anti-rheumatic remedy so useful and so free from objections. Its use is harmless; therefore it may be persistently given. Thirty grains hourly for eight doses have been given; and subsequently twenty grains every two hours for several days, with appreciable untoward effects. During the acute stages absolute rest is indicated. Robinson has not much faith in external applications, except as an adjuvant to intelligent medication. As a prophylactic measure he would not employ leeches, blisters or even an ice bag, but when acute symptoms supervene hot fomentations are very appropriate. He even insists upon the use of fly blisters over the præcordial region for commencing valvulitis.

The Early Recognition of Mammary Cancer.—Cheatle (*Brit. Med. Jour.*, May 26, '06) gives three most important signs in the early stages: 1. A single tumor; if multiple the case is probably not cancer. 2. Retraction of the skin over the tumor. 3. Flattening of part or all of the curve of the breast over the tumor. Enlarged axillary glands are already evidences of an advanced case; in all suspected cases, however, the axillæ should be examined. If the glands are enlarged on both sides it should argue against cancer. Retraction of the nipple is also a late sign, except when the tumor lies just beneath. Hemorrhage from the nipple on compression of the breast strongly suggests malignancy. If there is doubt an excised piece of the tumor must be examined. In order to prevent dissemination the exploratory operation should be a wide one, including the skin immediately above the tumor, and the fascia beneath.

Headaches Due to Aural Disease.—Hammond, of Boston, declared at the meeting of the American Medical Association that the intimate connection between the innervation of the ear and the central nervous system was clearly established by Zuckerkanel, "and later observation has offered further clinical proof of this relationship." Cerumen oftentimes causes most intense headache (and it is sometimes surprising how upon the instant of its removal both this symptom and deafness are relieved). Children may have persistent headache from slight Eustachian obstruction; and in these cases complete relief generally follows inflation. In the more chronic adhesive processes in the tympanic cavity the subjective symptoms are not always referred definitely to the ear. Fulness in the head, or brain pressure, might be associated with chronic mastoiditis. Headaches may be due to acute otitis media; and these may be relieved by peracentesis. Persistent headaches are caused by chronic suppurations. Exfoliated epithelium and other products of long-continued suppuration collected in the middle ear and mastoid cavities often form masses as large as a peach stone. They might even by pressure necrosis cause absorption of extensive bone areas. Oftentimes an ear that had suppurated at some former time might remain apparently dry for many years, with perhaps occasional crusts. All diseased matter must be removed; in the more advanced cases where the temporal bone is involved, only a radical operation will serve. Cessation of discharge will be followed by relief from headache.

Discarded Street-Cars for the Tuberculous.—The pioneer in the use of "superannuated trolley-cars" is Dr. Peters, of Providence, R. I. Dr. J. J. Walsh describes their use at the Gabriel Sanatorium in the Adirondacks (*International Clinics*). About a dozen old street-cars are here arranged in a large circle, each being fitted up to accommodate one patient. In many ways these cars present an ideal dwelling for those who must live the outdoor life; they have now for two years past given excellent results at Gabriel. They possess some decided advantages. They are cheap; they admit of segregation of patients; they are not damp and draughty across the floor, as are many of the old-fashioned tents. Modern tents, indeed, now closely resemble street-cars in their construction and equipment. The patient may cultivate a small plot of ground near his car if he is to remain during the summer, and this he may decorate as he pleases. The seats are removed; and the interiors are wainscoated as far as the windows. The door toward the north is permanently closed and boarded up. One great advantage of these cars is that they may be thoroughly cleansed and disinfected. They constitute an almost ideal dwelling during the summer months.

MISCELLANY

For cases of collapse a solution of camphor (one part) in ether (six parts) should always be on hand.

The quick-witted Japanese, the Yankees of the Orient, have discovered the profitable possibilities in patent medicines, and are extending their markets for these products in China, Korea, and the South Sea Islands.

Diet of a Child of Four.—An unfortunate and indiscreet child was found upon inquest to have died of ptomaine poisoning after having eaten some hokey pokey, winkles and shrimps and a "vegetable tablet" left as a sample at the house.

A considerate motorist was observed recently by the London *Bystander,* which rightly stated that honor should be paid where honor is due. The motorist in question, on a country road, deliberately avoided running over an animal. To speak precisely, it was a circus elephant.

"Newspaper Doctors."—An Illinois medical society recently decided that the names of members should not be mentioned in connection with medical matters in the daily press; and that, in the event of such notices in the future, the guilty wretch would be haled before the society to explain his most heinous offense.

A journal "by the mad for the mad" has been started by the inmates of the new insane asylum at Maneroeling, which is one of the largest in the world. Its contents are said to be surprisingly like those of most papers. If the alienist was right, who recently announced in a lay magazine that we are all of us more or less insane, such a journal as this should have a very wide circulation.

The poor in French hospitals, states the Paris *Eclair,* are badly received and are questioned in a loud voice in the presence of patients, students and visitors. The modesty of women is not respected. "The poor have the right to demand when they are under examination the observation of the elementary laws of modesty—as also of professional secrecy. The common people fear above everything the hospital."

Chloroform water as a haemostatic has been used by Spaak (*Jour. de Medic.* Sept. 16, '06), who finds it superior to all other styptics. It acts with marvelous rapidity; it has not the slightest disagreeable taste or odor; it is not escharotic; it is cheap, easily obtainable and can be made as required; it is not unpleasant to apply and does not interfere with the surgeon in his operations. Spaak recommends a two per cent. simple solution in water.

A Tuberculosis Exanthem is described by H. Voerner (*Muench. Mediz. Wochenschr.,* Sept. 11, '06) as having occurred in a child four months old, who was suffering from congenital dilitation of the colon and pulmonary tuberculosis. The rash occurred in groups on back, breast and abdomen, it consisted of very soft pin head to pea size nodules of a peculiar dark brown-red color. The microscope showed spindle and plasma cells with a few giant cells; tubercle bacilli could not be found. Infection through the blood is inferred.

How to Make Castor Oil Palatable.—*The Denver Medical Times* counsels admixture with an equal volume of glycerine, and flavoring with a drop of oil of peppermint, anise or cinnamon. The capsules of castor oil are now an excellent method of administration. Where there is no prejudice we suggest putting first about a tablespoonful of whisky in the glass; and then pouring the oil, being careful not to let it touch the sides of the glass, into the midst of the whiskey. Thus may a dose of castor oil be rendered palatable, and even pleasurable.

Yellow glasses for sensitive eyes have been prescribed by Motais for fifteen years past in cases of ultra-sensitiveness to light (*North Am. Jour. Homeopathy*). These glasses are of a yellowish tint, slightly orange, with a brownish tinge on reflection. They increase the perception of light while soothing the eyes. The yellow tint evidently prevents to some extent the passage of the chemical rays. These glasses, declares Motais, are far superior to smoked or blue glasses, while they do not impair the vision. When they are taken off even the most brilliant sunlight seems dead and lifeless in comparison.

The Relation of the Sexual Life to Nervous and Mental Diseases.—In an important paper (*Muench. Mediz. Wochenschr.,* Sept. 11, '06) Aschaffenberg declares that masturbation is never the cause of disease in normal persons. This practice, when excessive and long continued, usually indicates either mental disease or degeneracy. In the constitutionality neurotic it produces symptoms only through the effect on the mind. Chastity of itself produces no harmful effects, but only when the person fears that harm may come from continence. This author expresses sane opinions, which coincide with those of the best physicians who have studied this difficult and very important matter.

A Semmelweis Memorial.—It is stated that a monument is to be erected in Vienna to Ignatz Philipp semmelweis, the founder of the knowledge of the etiology and prophylaxis of child bed fever. In that city this great physician fought for the establishment of the great truths which have resulted in the saving of countless thousands upon thousands of mothers; "and its physicians propose to honor his memory in this manner." Excellent! but does not tradition have it that Semmelweis was, while he lived, one of the most bitterly maligned of men? Is it not even narrated that he was practically hounded to his death by his dear colleagues of the Viennese faculty. Is a monument going to set all that right, now that Semmelweis is dead? Erect one by all means; but it were decidedly worth while that the profession which Semmelweis so well served will in our day most conscientiously determine that such history shall never repeat itself.

The Present Status of Brain Surgery.—M. A. Starr finds (*Jour. A. M. A.,* Sept. 22, '06) that not more than 20 per cent. of cases of epilepsy are suitable for operation, and of those operated upon only 20 per cent. have been permanently cured. As to brain abscess, only 60 per cent. in 500 cases have recovered; with earlier diagnosis a greater proportion should be saved in the future. About 10 per cent. of brain tumors are operable; in 828 operations there were 116 recoveries, 205 cases improved, 186 not improved, 265 died, and in 56 the results were not stated; palliative operations are here justifiable. Cures by trephining are frequent in extradural hemorrhage: in apoplexy, with blood pressure rising to 250 mm. and pulse falling to 50, an operation to relieve pressure may save life; in intracranial hemorrhage of new-born children similar results may be obtained; also in surface hemorrhage from veins developing slowly after an injury. In imbecility no operation has been known to give any mental improvement.

INDEX TO VOLUME XXXIV

1906

A

ABBOTT, W. C. The Treatment of Neuralgia 136
Recent Views in the Treatment of Uræmia 375
Abdominal Cavity Scientifically Studied, The 200
Organs, In Displacement of the 350
Abortions, Those Who Desire..... 255
Absent Treatment by Mail..... 128
Absinthe, The Sale of..... 352
ADAMS, J. H. Pathologic Physiology of the Tractus Nervosus..... 232
Preventive Methods in Medicine 225
Adenoids, Treatment After Removal of 61
Administration of Medicines at Night 157
Air-borne Germs, Infection by..... 221
Albuminuria 224
Alcohol Bill, The Denaturized..... 277
Deep Injections of, in Neuralgia 221
Alcoholic Drinks, The Taste for..... 192
Alcoholism 347
Alteratives, The Iodides are..... 285
Amaurosis Following Paraffine Injection for Saddle-nose..... 95
American Nurses 160
Society of Tropical Medicine, The 224
Ammonium Bromide 64
Amputations, Avoid 32
Anæsthesia, Local, in the Radical Cure of Inguinal Hernia..... 30
Magnesium Sulphate 96
The Vapor Method of..... 16
Aneurism, Thoracic 159
Angioma of the Scalp..... 191
Anthracosis and Pulmonary Tuberculosis 115
Anti-Malarial Public Works..... 319
Apoplexy, The Prevention of..... 29
Appendicitis 153
Diagnosis, The Double A, B, C of 218
False 32
Gynecological Disease and..... 223
In Children 127, 144
The Physician's View of..... 75
Arsenic Iodide 256
Arterial Hypertension, Chronic..... 118
Artificial Leg, The Oldest..... 96
Aspirator, An Extemporized..... 288
Association Has Been Formed, An... 256
Asthma 29
The Treatment of Bronchial... 188
Atoms, Electrons and Ions..... 159
Atmospheric Nitrogen 69
Atrophy, A Consideration of..... 104
Atropine Poisoning, Chronic..... 348
Autointoxication 284
Automobile as a Financial Leveler, The 284

B

Balsam of Peru and Castor Oil..... 160
Beer and Tea, The Harmfulness of.. 160
von Behring's Remedy..... 32
Belladonna Poisoning 256
Bellevue and Allied Hospitals..... 28
Doctors Robbed 320
BENEDICT, A. L. Hypertrophy or Compensation 132
School and the Child..... 364
Skepticism and Credulity..... 280
The Epigram in Medical Writing 122
The Ethics of Proprietary Preparations 183
The Field of the Untrained Nurse 205
The Recording of Sensory Impressions for Scientific Purposes 88
BERGER, W. Problems in Tuberculosis to be Met by the General Practitioner 326
The Latest Suggestions in the Treatment of Children's Diseases 142, 169
Beriberi 89

BIBLIOGRAPHICAL

Abrams, A. Man and His Poisons... 54
Addison, C. Ellis' Demonstrations of Anatomy. Revised and Edited... 182
Allbutt, T. C. A System of Medicine 54
On Professional Education, with Special Reference to Medicine 151
Ashton, W. E. A Text-book of the Practice of Gynecology..... 152
Attfield, J. Chemistry: General, Medical and Pharmaceutical..... 342
Bacon, G. A. Manual of Otology.... 343
Bailey, F. R. A Text-book on Histology 342
Bain, Wm. A Text-book of Medical Practice 22
Bainbridge, W. S. A Compend of Operative Gynecology 279
Bastedo, W. A. Essentials of Materia Medica 54
Becker, T. C. Forensic Medicine and Toxicology 279
Berg, A. W. A Manual of Surgical Diagnosis 21
Black's Medical Dictionary..... 121
Blackwood, A. L. A Manual of Materia Medica, Therapeutics and Pharmacology 217
Bouchard, C. Lectures on Autointoxication 23
Boveé, J. W. The Practice of Gynecology by Eminent Authorities... 217
Brickner, W. M. Surgical Suggestions 247
Brown, S. H. Eczema..... 279
Bryant, J. D. American Practice of Surgery 310
Buck, A. H. American Practice of Surgery 310
Butler, G. H. A Text-book of Materia Medica, Therapetuics and Pharmacology 152
Caillé, A. Differential Diagnosis and Treatment of Disease..... 55
Carr, W. L. The Practice of Pediatrics by Eminent Authorities..... 279
Casper, L. A Text-book of Genito-Urinary Diseases 343
Chapin, H. D. Vital Questions..... 23
Church, A. Nervous and Mental Diseases 55
Clark, J. H. Whooping Cough Cured by Pertussin 217
Comrie, J. D. Black's Medical Dictionary 121
Cooper, W. C. Preventive Medicine. 87
Copeland, R. S. Refraction..... 86
Da Costa, J. C. Gray's Anatomy, Edited by 86
Douglas, B. A Text-book of the Diseases of the Ear, Nose and Throat. 54
Dubois, P. The Influence of the Mind on the Body..... 279
Ellis' Demonstrations of Anatomy... 182
Fischer, L. The Health—Care of the Baby 247
Foltz, K. O. Diseases of the Nose, Throat and Ear..... 279
Fowler, G. R. A Treatise on Surgery 151, 217
Fowler, R. S. The Operating Room and the Patient..... 152
Fruhwald, F. A Reference Handbook of the Diseases of Children. 152
Gray, H. A Text-book of Human Anatomy 86
Haggard, W. R. A Hand-book of Climatic Treatment, Including Balneology 151
Haig, A. Diet and Food..... 342
Hare, H. A. Progressive Medicine.. 22, 153, 248, 343
Heitzman, L. Urinary Analysis and Diagnosis 87
Huber, J. B. Consumption and Civilization 247
Hutchinson, R. Food and the Principles of Dietetics..... 121
Ibershof, A. E. Refraction..... 86
International Clinics 86, 182, 279, 342
International Medical Annual for 1906, The 153
Johnston, J. B. The Nervous System of Vertebrates 343
Kemper, G. W. H. The World's Anatomists 121
Klarman, Rev. A. The Crux of Pastoral Medicine 151
Koplik, H. A Treatise on the Diseases of Infancy and Childhood.. 87
Kyle, J. J. Manual of Diseases of the Ear, Nose and Throat..... 182
Landis, H. G. A Compend of Obstetrics 182
Landis, H. R. M. Progressive Medicine 22, 153, 248, 343
Larned, J. N. Seventy Centuries of the Life of Mankind..... 121
Le Fevre. A Manual of Physical Diagnosis 22
Leffman, H. Compend of Medical Chemistry 54
Loeb, J. The Dynamics of Living Matter 182
McCrudden, F. H. Uric Acid..... 248
McGrath, J. J. Operative Surgery... 21
Mann, G. Chemistry of the Proteids. 151
Meeker, H. D. A Compend of Operative Gynecology 279
Metchnikoff, E. Immunity in Infectious Diseases..... 23
Morris, H. Essentials of Materia Medica 55
Moschowitz, E. Surgical Suggestions 248
Moynihan, B. G. A. Gall Stones—Their Surgical Treatment..... 55
Oppenheimer, S. Surgical Treatment of Chronic Suppuration of the Middle Ear and Mastoid..... 87
Overall, G. W. A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa..... 310
Park, W. H. A Manual of Pathogenic Microorganisms 22
Paul, G. P. Nursing in the Acute Infectious Fevers 151
Peterson, F. Nervous and Mental Diseases 55
Prince, M. The Dissociation of a Personality 54
Progressive Medicine 153, 248, 343
Raue, C. S. Diseases of Children.... 86
Riley, C. M. Toxicology..... 342
Rockwell, A. N. Sexual Neurasthenia 22
Rolleston, H. D. A System of Medicine 55
Roosa, D. B. St. J. A Text-book of Diseases of the Ear, Nose and Pharynx 54
Schmidt, A. The Examination of the Function of the Intestines by Means of the Test-tube..... 153
Schweinitz, G. E. de. Diseases of the Eye 152
Simon, W. Manual of Chemistry.... 21
Smith, D. T. Before and After Surgical Operations 310
Stevens, A. A. A Text-book on Modern Materia Medica and Therapeutics 56
Thorington, J. The Ophthalmoscope and How to Use It..... 121
Thornton, E. Q. Dose-Book and Manual of Prescription Writing..... 56
Pocket Medical Formulary..... 87
Westcott, T. S. A Reference Handbook of the Diseases of Children. 152
Wharton, H. P. Minor and Operative Surgery 22
Wilcox, S. S. Essentials of Genito-Urinary and Venereal Diseases.. 151
Witthaus, R. A. Medical Jurisprudence, Forensic Medicine and Toxicology 279
Medical Student's Manual of Chemistry 342
Williams, H. M. A Manual of Bacteriology 86
Williams, R. F. Food and Diet in Health and Disease..... 86
Biograph in Medicine, The..... 104
Bismuth in Blood..... 119
Bladder, Surgery of the..... 207, 237
Blind, There are 50,000..... 256
Blood Cells in Health and Disease.... 347

In Pulmonary Tuberculosis, The 94
Bodington 207
Bone Cavities 348
Books for the Blind..... 192
Bovine Tuberculosis 256
Brain Fever 256
Surgery, The Present Status of 348
The Wonderful Capacity of the, for Vicarious Working..... 286
Brains, Male and Female..... 352
British Science Guild..... 32
Bromism in Medicine, The Passing of 60
Bronchial Glands and Pulmonary Tuberculosis 285
Brouordel, Prof..... 320
BRUBAKER, F. H. A Consideration of Atrophy 104
A Consideration of the Nervous System 334, 356
Duality of All Organic Structure, The 9
How I Colored the Old Man's Hair 248
Physiological Rhythm 175
The Physiology of Nutrition, a Comparative Study 41, 71
Bubonic Plague, Rats and the..... 280
Bullet Wounds, The Treatment of Modern 383
Burden-Sanderson, Sir John Scott... 32
Burns, The Open Treatment of..... 156
Business Methods, Physicians'..... 64
Buttermilk, Dessicated 352

C

Cæsarian Section 320
California State Medical Association, The 31
Camphor and Phenol 160
Cancer, Radium in Oesophageal..... 66
Cancers, Our Knowledge of, Especially of Gastric Origin..... 166
Canned Food Labels, Read the..... 286
Carcinoma in Early Life..... 349
Cardiac Diseases, Phases of..... 265
The Condition of the Blood Vessels in 93
Cardiaspasm 189
Case and Patient..... 192
Castor Oil, How to Make Palatable.. 348
Caterpillar Fever 288
Cerebro-Spinal Meningitis 60
Cervical Rupture by Means of a Dilator 30
Chandler, G. H. Methods for Facilitating Normal Labor..... 345
Chalazion 190
Chancre and Chancroid, The Treatment of 28
Chauffeurs, Medical Certificates for.. 96
Cheap Thermometers..... 244
Children's Diseases, The Latest Suggestion in the Treatment of...142, 169
Children, Skin Diseases in Young.... 31
Chloroform 128
Water as a Hæmostatic 384
Cigarette Smoking 192
Citronella, Oil of..... 352
Clark, C. G. Treatment of Hemorrhage from the Genito-Urinary Tract 112
Clarke, F. S. Do Medicaments Cure? 23
Clinical Medicine 62
Clothes, A Work on the Pathology of 30
Clothes-Brush, The Deadly..... 191
Code of Medical Ethics, The..... 224
Colds 94
Are Contagious 352
Collapse, For Cases of..... 384
Colored Physicians 192
Considerate Motorist, A..... 384
Constipation 318
And Diarrhœa Clinically Considered 198
Consumption Blotter, A New..... 6
Consumptives, A City of..... 61
COOPER, W. C. The Sex Problem.... 240
Medical Errors and Abuses.... 311
Copperhead Snake Bites..... 349
Creagh, J. A New Treatment of Tetanus 27
Crematories, Ninety 64
Cultivation of Bananas, The..... 224
Cyto-diagnosis of Pleural and Cerebro-Spinal Fluids, The..... 29

D

Deafness, Many Cases of..... 96
Decidual Tissue, Diagnostic Significance of 350
Designation of One's Associate in Medicine 320
Diaebtes Mellitus in Children..... 347
Diabetic Coma in Children..... 95
Diameters of the Normal and Phthisical Chest 157
Diet of a Child of Four..... 384
Diet, Several Considerations in the Therapeutic Use of..... 253
Digitalis and Valvular Disease..... 156
Diphtheria of Wounds..... 28
Disease? What Do We Call..... 322
Doctor's Waiting Room..... 62
Don't Prophesy Unless You Know... 128
Doremus, Dr. Robert Ogden..... 159
Drug and Liquor Habits, The..... 347
Druggists, Professional Relations Between Physicians and..... 66
Drug Giving 320
Dust a Room, How to..... 128
Dyspepsia, The Successful Treatment of 171

E

Earache 158
Ear, Diseases of the, Capable of Treatment 13
Eat Far Too Much, Adults..... 288
Echinococcus Cyst of the Liver..... 380
Eclampsia 254, 379
Ecthyma 46
Ectopic Pregnancy, The Differential Diagnosis of 127
Eczema 279
EDITORIALS:
Accurate Expression 341
American Medical Association in Boston, The 212
Aseptic Money 147
Automobile for the Doctor, The..... 216
Homicides 338
Average Length of Practice of the American Physician, The..... 52
Bacteriological Identification 210
Bacteriologist, A County..... 308
Beef, By-Products of..... 20
Blood Examinations 82
Brain Work and Longevity..... 84
Bright's Disease 19
Cancer Patients, Hope for..... 117
Case Histories 53
Christian Science Practitioners..... 116
Clemenceau—Physician and Statesman 180
Coal-Tar, Fifty Years of..... 276
Concentration of Effort in Medical Associations 114
Country Doctor, The..... 274
Darlington, Reappointment of..... 51
Death Rattle, The..... 114
Difficulties of Research for American Investigators, The 371
Doctoring in Many Lands..... 84
Druggists and Substitution..... 148
Egg, Concerning the..... 278
Evolution the Master Key..... 181
Expert Testimony 306
Facial Expression in Diagnosing Men-

tal Disease 243
Family Doctor, The..... 213
Food Problem, The..... 215
Football, Investigation of..... 50
Forest Reservation 85
Fourth of July Problem, The..... 275
Gastronomy 341
Graduate, The Present Prospects of the Medical 145
Graft in Public Office..... 245
Harvard Medical School, The New.. 340
Heart in Tuberculosis, The..... 246
Henry Phipps Institute, The..... 246
Illuminating Gas, The Dangers of... 20
Immunity 113
Insane Cruelly Treated? Are the..... 179
Insects as Disease Conveyors..... 214
Insurance Management, The Medical Side of 18
Lay Press Cures of Graves' Disease.. 244
Leprosy, The Infectivity of..... 277
Liver, The Right and Left..... 308
Medical Profession's Growth Into a Business Force, The..... 209
Medical Reports Violating the Principles of Privacy..... 369
Mental Defectives, To Operate Upon. 307
National Quarantine, A..... 146
Navy Surgeons 116
Negro Problem from the Physicians' Standpoint, The 339
New York City's Garbage..... 307
New York City's Low Death-Rate... 115
Noises, Ruthless 177
Openings for Physicians..... 241
Opsonins, The 370
Panama Canal, The..... 53
Panama, Medical Conditions on the Isthmus of 81
Partially Trained Nurse, The..... 338
Physicians and "Who's Who" in America 210
Plague in Japan, The..... 273
Present Prospects of the Medical Graduate, The 145
Prevalence of Disease, The..... 372
Pure Food Bill, The..... 83
Pure Food Versus Pretty Food..... 337
Railroad Accidents 305
Rodents and Disease 180
Roentgen Rays in the Diagnosis of Diseases of the Lungs, The..... 51
Scientific Editor, A..... 82
Season's Greetings, The..... 17
Shock as a Curative Agent..... 179
State Control of Disease..... 373
Surgical Tuberculosis 19
Tea and Coffee 276
Therapeutic Problem, The..... 49
Tobacco Smoke, The Effect of, on the Human Organism 178
Triplets as a Financial Problem..... 243
Unauthorized Operations 337
Vacation City, A..... 307
Vacations, As to..... 147
Vegetarianism 213
Wesley, John's, "Primitive Physic".. 245
Electrotherapy, The Limitations of... 218
Embalming in Ancient Egypt..... 87
Empyema, Successful Treatment of.. 300
Emunctory Medicine 56
Endocarditis 383
Enemata, Nutrient 283
English Patent Medicines..... 256
Enuresis in Children..... 95
Nocturnal 208
Epigram in Medical Writing, The.... 122
Epilepsy, Jacksonian 287
Eucalyptus Tree, The..... 32
EVANS, T. H. Palimpsests of Parasthenics 11
Rights of the Parasthenic..... 294
Excessive Light, Neurasthenia and... 287
Exophthalmos, Intermittent 157
Eye, Tuberculosis of the..... 288

F

False Teeth 112
Fashion, The Tyranny of..... 160
Fees, Physicians' 64
Fee Table, Certain Items that Injure the General Practitioner..... 65
Fever During Menstruation as an an Early Sign of Tuberculosis... 94
Fibromata in Three Sisters..... 21
Filiform, Before Introducing a..... 64
Financial Problems, Physicians'..... 37
First Aid to the Injured Eye..... 48
Flint, Dr. Austin..... 255
Floating Hospital, A..... 48
Food Poisoning, A Case of..... 158
The Scientific, of the Future... 282
FOWLER, J. L. Surgery of the Bladder 207, 237
Fresh Air for Mine Workers..... 349
Fungus Poisoning 60
Furor Secandi, The..... 346
Furuncle, After Excision of a Large.. 160

G

Gallstone Cures 37
Disease 349
Garcia, Manuel 278
Gastric Contents, The..... 346
Gastro-Enterostomy 271
GEPPERT, J. P. Emunctory Medicine. 56
German Hospital Cars..... 96
Germ Plasm, The Sex Cycle of the.. 263
Ginseng, American 31
Glycocholate of Sodium in Liver Disease 62
Gonorrhœa 184
Gopher, The 16
Gout, Constitutional, and Acute Attacks of 380
Graveyard Insurance 32
Great White Plague, The..... 129

H

"Habit-spasms" in Children..... 381
Hæmoptysis 317
Hair, Why the Color of the..... 27
Turns White 346
Hall, Miss Anne S., A Disciple of.... 96
Hamlet's Father, The Ghost of..... 224
Handkerchief, The Linen..... 157
Hand That Rocks the Cradle, The.... 255
Harvard Medical School, The..... 351
Hay Fever 220
HAYWARD, H. H. Constipation and Diarrhœa Clinically Considered.. 198
Headaches 223
Due to Aural Disease..... 383
Heart Affections, Opium in..... 350
Disease, The Psychoses of.... 286
Trouble, Scientific Treatment of 313
Hearts of Athletes, The..... 381
Hemorrhage from the Genito-Urinary Tract, Treatment of..... 112
Heredity, A Problem in..... 224
Hernia in Young Children..... 128
High Handshake, The..... 320
Hip Disease, Traction in..... 318
Hodgkin's Disease 192
"Home Sanatorium," The..... 158
Homes for Poor Convalescents..... 128
Horse Cars for Consumptives, Old... 191
Hospital Conference, A..... 192
Housing and Tuberculosis..... 158
How I Colored the Old Man's Hair.. 248
Hunger Days in Diabetes..... 320
Hyperchlorhydria 158
Hypertrophy or Compensation..... 132
Hyoscine in Paralysis Agitans..... 61

I

Ice, Impurities of..... 317
Inebriates 251
Intantile Scorbutus 319
Infection, Puerpural 288
In Scarlet Fever..... 287
Influenza, An Epidemic of..... 126
Inguinal Hernia, Local Anæsthesia in the Radical Cure of..... 30
Injuries to the Child's Head During Labor 254
Insanity, The Borderland of..... 139
The Prognosis in..... 284
Inside Our Walls..... 359
Insurance, There is no..... 240
Instinct for Bargains, The..... 256
Intestines and Liver, The Newer Surgery of the..... 303, 329
Intrathoracic Disease, Distant Signs of 219
Intravenous Saline Infusion..... 32
Iodides are Alteratives, The..... 285

J

Jacobi, Dr. Mary Putnam..... 255
Jacksonian Epilepsy..... 287
Japanese, The 128
Woman, The First..... 224
Japan Had 35,685 Doctors..... 309
Journal "by the Mad for the Mad," A 384
Jungle, The 224
Jurisprudence, Medical 279
Just Sentiment, A..... 128

K

Kernig's Sign 64
Kidney, Diagnosis and Treatment of Tuberculosis of the.....46, 74
Surgery, and the Utility of Diagnostic Aids 158
Koch, Prof..... 256

L

Labor, Notes on the Management of. 367
The Conduct of a Normal..... 317
Will be a Dream..... 32
Landry's Paralysis 233
Laryngeal Disturbances in Babies.... 121
Phthisis 31
League Against Seasickness, The.... 96
Legal Responsibility of the Physician for the Unborn Child, The..... 347
Unity of the Medical Profession 154
Leprosy as it Exists in the Philippines 223
"Leucocytes? Would You Care to Paralyze Your" 288
Life as Lived in New York..... 190
Is Not Long Enough..... 96
Liquid Air 352
Litten's Phenomenon 174
London Doctor, A..... 32
Longevity, The Secret of..... 64
Lubricant for Urethral Instruments, A. 224
Lumbago 254, 262

M

McCaughan, G. E. Overwork and Long Hours 343
McCrory, M. The Physician's View of Appendicitis 75
Magnesium Sulphate Anæsthesia..... 96
Malignant Disease 192
Mammary Cancer, The Early Recognition of 383
Man Can in Future Be Made to Order 191
Manhattan Eye, Ear and Throat Hospital, The 383
Manitoba Health Resort, A..... 156
Marriage 191
Marrs, W. T. Methods of Facilitating Normal Labor..... 270
Side Lights on the Practice of Medicine 334
Suggestive Therapeutics 33, 109
Marshall, J. E. Successful Treatment of Empyema 300
Mastoiditis, When to Operate in Acute 125
Masumo, Dr..... 288
Measles and Pertussis..... 350
Meat, The 256
Medical Education in Europe, The Cost of..... 380
Errors and Abuses..... 311
Faculty in Paris, The..... 256
Insurance 120
Social Settlement, A..... 160
Union, The 64
Medicaments Cure, Do?..... 23
Medicines, A Liquor Tax on..... 160
Menopause, For the..... 64
Mercurial Inunction in Infantile Syphilis 347
Method for Facilitating Normal Labor 344
Milk Licenses 224
Mind on the Body, The Influence of the 279
Miscellany 32, 64, 96, 128, 160, 192, 224, 256, 288, 320, 352, 384
Morris, R. T. The Double A B C of Appendicitis Diagnosis 218
Morris, W. T. Notes on the Management of Labor..... 367
Mortality in Infants, The..... 352
Musical Heart Murmurs..... 63
Myxedema in the Male..... 183

N

Nails, Changes in, After Acute Diseases 127
Nauheim Methods 317
Nearly a Million Deaths..... 381
Nephritis, The Dietetic Treatment of. 85
Nervous Diseases, General Pathology, Symptomatology and Diagnosis of 123
System, A Consideration of the 334, 356
Neuralgia 352
The Treatment of..... 136
Neurasthenia 190
And Excessive Light..... 287
Nesteostomy 222
New York, The Port is Well Guarded 96
Ninety Per Cent. of Defective Teeth. 352
Normal Labor, Methods of Facilitating 270
Novelist's Idea of a Doctor, The..... 288
Nurse's Kindergarten, A..... 192
Nurse Thoroughly Accustomed to Bottle Babies 128
Nutrient Enemata 283
Nutrition or Fate..... 97
The Physiology of, A Comparative Study 41, 71

O

Obesity 123
Oedema 58
One-Child Sterility 367

One-Seventy Millionth Part, The.... 217
Ophthalmological Phases of Accessory Sim's Disease..... 222
Opium, The Importation of..... 128
Opsonic Index, The.....222, 379
Opsonins, Phagocytosis and..... 285
Organic Structure, The Duality of... 9
Osler, Extracts from the Writings of Dr..... 120
Osteopathy Bill, Suppose it Had Become a Law..... 282
Ostwald on Football..... 160
Other Times, Other Manners..... 256
Outdoor Sleeping 206
Overwork and Long Hours..... 343
Oxygen Hospital 64
Oysters 192

P

Pain Referred and Reflected..... 188
Palimpsests of Parasthenics..... 11
Palliative Surgery 270
Pancreatic Activity, A Test for..... 95
Panophthalmitis 127
Parasthenic, Rights of the..... 294
Parathyroids are Related to Paralysis Agitans, The 190
Paris Duel, A..... 224
Medical Journal, The..... 224
University, The Medical Faculty of the..... 224
Patent Medicine Peddlers..... 32
The Secret of the Popularity of 191
Perineal Abscess 31
Phagocytosis and Opsonins..... 285
Phenol, Pure, in Furuncle and Tuberculous Skin Lesions..... 30
Philippine Bureau of Science, A..... 381
Phthisis, Laryngeal 31
Sea Water Injections in..... 32
Physician, The 192
Physiological Rhythm 175
Pilcher, Major 381
Piracy in Medical Journals..... 122
Placating the White Plague..... 161
Pleura, Inflammation of the..... 64
Pleurisy, Tubercular 188
Pneumonia and its Management..... 99
The Prophylaxis of Labor.... 318
The Treatment of..... 93
Poison Farm, A..... 83
Poor in French Hospitals, The..... 384
Post-Operative Nausea 181
Potassium Permanganate as a Hemostatic 218
Prayer of the Medicine Man, The.... 150
Precancerous Conditions 32
Pregnancy, In the Vomiting of..... 318
Ptyalism in 281
Prehistoric Vesical Calculus, A..... 128
Preserved in Alcohol..... 306
Preventive Methods in Medicine..... 229
Princess Henry of Battenberg..... 32
Prize Ring, The..... 256
Process of Photographing Germs, A.. 128
Professional Relations Between Physician and Druggist..... 66
Professor Curié 191
Proprietary Preparations, On the Ethics of 183
Prostate, The Enlarged..... 189
Prostatic Hypertrophy and Diabetes.. 223
Pruritus Ani 287
Psoriasis as Related to Rheumatism.. 222
Psychoses of Heart Disease..... 286
Public Medical Lectures..... 63
Puerpural Convulsions, In..... 223
Infection 224, 288
Pulmonary Oedema, or Acute Respirato Congestive Catarrh..... 219
Pyloroplasty vs. Gastro-Enterostomy. 182
Pyosalpinx, The Prophylaxis and Treatment of 95

Q

Quadruplets 256
Quick-Witted Japanese, The..... 384

R

Rachitis 160
Radium 352
Cures 128
In Oesophageal Cancer..... 66
Is Still Expensive..... 304
Railway Brain Strain..... 319
Rats and the Bubonic Plague..... 280
Red Bug Disease, The..... 160
Tape Limit, The..... 5
REED, T. E. The Sex Cycle of the Germ Plasm 262, 289, 321, 353
Respiration Innervation 319
Reversion to Type, A..... 32
REYNOLDS, G. R. Diagnosis and Treatment of Tuberculosis of the Kidney 46, 74
Rheumatic Manifestations in Childhood 111
Rheumatism, Chronic 125
The Causation of 286
The Nature and Treatment of. 253
Rhus Toxicodendron Poisoning..... 59
Rhythmic Head Movements in Exophthalmic Goitre 348
Robbery of a Trained Nurse, The.... 96
ROBINSON, B. Pathologic Physiology of the Tractus Nervosus..... 232
Rockefeller Institute for Medical Research, The 62
Roof Recreation in Summer 297
Roosevelt's, President, Action Against Tuberculosis 176
ROWE, F. H. Ptyalism in Pregnancy. 281
Russian Red Cross Society, The..... 254

S

St. Francis Hospital, The New..... 160
St. Mary's Shelter..... 128
Sanatorium, The Home..... 158
Treatment for the Tuberculous, The Advantages of..... 95
Sanitary Campaign in Cuba, A..... 380
Control of the Municipal Milk Supply, A Scheme for the... 62
Sanitation and Tuberculosis..... 376
Sarcoma, Primary, of Both Adrenals. 320
Sarsaparilla, Therapeutic Value of... 288
Scarlet Fever Infection.....254, 287
Scepticism and Credulity..... 280
SCHELLENBERG, M. Our Knowledge of Cancer, Especially of Gastric Origin 166
Schools and the Child..... 364
Sciatica 31
Science 310
Seasickness, The League Against.... 96
Sea Water Injections for Phthisis... 32
Semmelweis Memorial, A..... 384
Senile Cataract, The Prophylaxis of.. 378
Sensible View of Medical Etiquette, A. 320
Sensory Impressions, The Recording of, for Scientific Purposes..... 88
Sex Cycle of the Germ Plasm; Its Relation to Sex Determination 263, 289, 321, 353
Problem 240
Sexual Life to Nervous and Mental Diseases, The Relation of..... 384
Matters, The Instruction of the Young in 186
Shock, In Treating..... 156
Shoulders, Stiff and Painful..... 287
Side Lights in the Practice of Medicine 334

Skeleton, The Form and Substance of a 64
Skin Diseases in Young Children.... 31
Sleeping Sickness 128, 288
Sleeplessness 350
Smallpox an Expensive Disease..... 159
A Very Mild Type of..... 381
Social Evil, The..... 193
Dilemma 225
Infections, Shall They Be Legally Repressed 257
Society Aginst Quacks and Adulterated Foods, A 352
Spanemic Heart, The..... 320
Spirochæta Pallida, The..... 58
STADDON, S. E. The Adominal Cavity Scientifically Studied 200
Stage Fright, To Prevent..... 32
Stammering 287
Stereoskiagraphy 320
Sting of Bees, The..... 256
Stomach, Modern Tests in Diseases of the 90
Stored Game, Diseases Caused by.... 96
Student Statistics 192
Subway Roadbed, The..... 160
Suggestive Therapeutics 33, 109
Suit Against Two French Physicians. 94
Superstitions with Regard to Pregnancy 87
Surgeon Generals, Three..... 54
Surgery, Palliative 270
Surgical Brethren, Our..... 382
Feat, A Remarkable..... 171
Tuberculosis 80
SWAYZE, G. B. H.
Great White Plague, The..... 129
Inside Our Walls..... 359
New Consumption Blotter, A.. 6
Nutrition or Fate..... 97
Physicians' Problems 37
Placating the White Plague... 161
Roof Recreation in Summer... 297
Shall Social Evil Infections Be Legally Repressed 257
Social Evil, The..... 193
Social Evil Dilemma, The..... 225
What Do We Call Disease?... 322
Sweat Shops, The Passing of the.... 92
Syphilis and Myopia 382
A New Sign of Hereditary.... 144
Of the Third Generation..... 350
The Treatment of..... 272

T

Tabes, In, As in General Paralysis.. 351
TAYLOR, H. The Successful Treatment of Dyspepsia 171
Telephone, Prescribing by..... 351
Terrors 351
Test Breakfast, The..... 191
Testevin's Reaction in Children's Diseases 187
Tetanus 220
In Children is Curable..... 60
New Treatment of..... 27
Theatre Doctor, The..... 192
THERAPEUTICS, RETROSPECTIVE 27, 33, 46, 58, 74, 90, 123, 156, 184, 218, 251, 282, 317, 346, 382
There Are 228,234 Doctors..... 352
Thoracic Aneurism 159
Duct and Tuberculosis, The... 119
3,075 Americans 148
Tick, or Spotted, or Rocky Mountain Fever 293
Time for Study and a Time for Sleep, A 350
Toronto Meeting of the British Medical Association, The..... 312
Transfer of Patients, The..... 128
Treatment of Disease with Various Gases 345
The Value of Various New Forms of 110, 139
Triad of Hutchinson, The..... 126
Trudeau, Dr. E. L., Jr., A Memorial to 32
True Saying, A..... 32
Tubercular Arthritis in Children..... 125
Meningitis, Primary 383
Tuberculosis (v. also Consumption, Phthisis, Editorial, Bibliography and Therapeutics):
Advantages of the Sanatorium Treatment of 95
Anthracosis and Pulmonary... 115
Blood in Pulmonary, The..... 94
Bovine 256
Bronchial Glands and Pulmonary 285
Dissemination of, by Ants..... 254
Early Diagnosis of Acute Pulmonary 125
Excision of the Right Lung for 380
Exhibition, The American..... 64
Eye, of the..... 288
Housing and 158
How the Fight Against, Now Stands 255
In Children 349
In Infancy, The Origin of..... 350
Kidney, of the, Diagnosis and Treatment of 46
Lymph Nodes, in the..... 151
Open Air Treatment of, The 188, 253
President Roosevelt's Action Against 176
Problems in, To Be Met by the General Practitioner 326
Sanitation and 376
Serum, A New..... 165
Sufficient Ground for Divorce. 216
Surgical 89
Thoracic Duct and..... 119
Tuberculous Bronchial Glands in Children 159
Cattle, The 32
Cervical Adenitis 364
Discarded Street Cars for the. 383
Exanthem, A 384
Pleurisy 188
Sputum, The Sterilization of.. 382
Tumors, The Etiology of..... 286
Typhoid Bacilluria, Urotropin in..... 127
Fever, Abrupt Onset of..... 221
Complicating Pregnancy 320
Recent Advances in Handling... 43
Tyranny of the Young Person, The.. 382

U

Ulcers, The Treatment of Leg..... 156
ULRICH, A. N. Pneumonia and its Management 99
Recent Advances in Handling Typhoid Fever 43
Untrained Nurse, The Field of the... 205
Uræmia, Current Theories of..... 221
Recent Views in the Treatment of 375
Urinary Sediments, The Common Microscopic Findings in..... 283
Urotropin in Typhoid Bacilluria..... 127
Uterine Hemorrhage, Chronic..... 126
Uterus, Complete Inversion of the.... 351

V

Vaccination Accident, A Curious.... 192
Vaginal Cleanliness 126
Vain Thirst for Gore, A..... 256
Valvular Heart Disease 189
Vapor Method of Anæsthesia, The... 16
Vicarious Working, The Wonderful Capacity of the Brain for..... 286
Vienna Hospitals 320
Virchow Hospital, The New..... 160
Visceral Arterio-Sclerosis 118

W

Walter Reed U. S. Army General Hospital, The 192

Waste Paper 96
Whiskey, The Safe Kind of..... 320
Willard Parker Hospital, The..... 192
WILLIAMSON, A. R. The Value of Various New Forms of Treatment 110, 139
The Newer Surgery of the Intestines and the Liver....303, 329
WILSON, G. R. The X-Ray as a Therapeutic Means 1, 34
WORMLEY, W. M. Phases of Cardiac Disease 265
Diseases of the Ear Capable of Treatment by the General Practitioner 13

X

X-Ray as a Therapeutic Measure, The 1, 34

Y

Yellow Fever, No, Without Mosquitoes 191
The Prophylaxis of..... 288
Yellow Glasses for Sensitive Eyes... 384
Yerkes Hospital Foundation, The.... 64
At the Present Time, The..... 335

GENERAL LIBRARY,
UNIV. OF MICH.
DEC 10 1906

Medical Times

A Monthly Journal of Medicine, Surgery, and the Collateral Sciences

Vol. XXXIV., No. 12 **NEW YORK, DECEMBER, 1906** **10 cents a copy $1.00 per annum**

ORIGINAL ARTICLES.

The Sex Cycle of the Germ Plasm. its Relation to Sex Determination. By Thomas E. Reed, M.D. Part IV..... 353

A Consideration of the Nervous System. By F. B. Brubaker, M.D. Part II..... 356

Inside Our Walls. By George B. H. Swayze, M.D..... 359

School and the Child. By A. L. Benedict, M.D..... 364

Notes on the Management of Labor. By W. T. Marrs, M.D.. 367

EDITORIALS.

MEDICAL REPORTS VIOLATING THE PRINCIPLE OF PRIVACY 369

THE OPSONINS 370

THE DIFFICULTIES OF RESEARCH FOR AMERICAN INVESTIGATORS. 371

THE PREVALENCE OF DISEASE.... 372

STATE CONTROL OF DISEASE..... 373

BIBLIOGRAPHICAL 374

A Primer of Psychology and Mental Disease. By C. B. Burr, M.D.—Diseases of the Stomach, By Max Einhorn, M.D. A Syllabus of Materia Medica. Compiled by Warren Coleman, M.D. – Retinoscopy. By James Thorington, M.D. Stohr's Histology. Arranged by Dr. Frederic T. Lewis.— Rhythmotherapy. By Samuel S. Walhan, A.M., M.D.—The Ear and its Diseases. By Seth Scott Bishop, B.S., M.D., LL.D.— Studies in the Psychology of Sex. By Havelock Ellis.

CORRESPONDENCE 375

Recent Views on the Treatment of Uremia. By W. C. Abbott. M.D.

Sanitation and Tuberculosis. By B.

RETROSPECTIVE. 379

The Opsonic Index Eclampsia—Excision of the Right Lung for Tuberculosis – Constitutional Gout and Acute Attacks Echinococcus Cyst of the Liver. The Cost of Medical Education in England A Sanitary Campaign in Cuba The Hearts of Athletes A Very Mild Type of Small-Pox – The Enno-Saunders Medal—A Philippine Bureau of Science Nearly a Million Deaths from Plague—"Habit Spasms" in Children—Syphilis and Myopia The Sterilization of Tuberculous Sputum Our Surgical Brethren—The Manhattan Eye. Ear and Throat Hospital The Tyranny of the Young – Primary Tuberculous Meningitis The Treatment of Modern Bullet Wounds—Pulmonary Tuberculosis and Obstetrics– Endocarditis—The Early Recognition of Mammary Cancer—Headaches Due to Aural Disease – Discarded Street-Cars for the Tuberculous.

MISCELLANY.

Tuberculous Cervical Adenitis, 384. One-Child Sterility, 387. Absinthe, 388. The Prophylaxis of Senile Cataract, 388.

A Remedy in Collapse — The Quick-Witted Japanese – Diet of a Child of Four—A Considerate Motorist — "Newspaper Doctors"– A Journal "by the Mad for the Mad"– The Poor in French Hospitals—Chloroform Water as a Hæmostatic—A Tuberculosis Exanthem—How to make Castor Oil Palatable—Yellow Glasses for Sensitive Eyes The Relation of the Sexual Life to Nervous and Mental Disease—A Semmelweiss Memorial—The Present Status of Brain Surgery... 384

Entered at the New York Post Office as Second class matter.

Your request

on a postal card will bring you a supply of samples of Mellin's Food for Infants and Invalids free of charge.

Write us to-day giving your office address.

MELLIN'S FOOD COMPANY, BOSTON, MASS.

JUST ISSUED—A NEW WORK
THE PRACTITIONER'S OPHTHALMOLOGY

Theobald's Prevalent Eye Diseases

With few exceptions all works on diseases of the eye, although written ostensibly for the general practitioner, are in reality adapted only for the specialist; but in Dr. Theobald's book *the requirements of the physician engaged in general practice have been made paramount*. The difficulties with which he has to contend in diagnosing ocular maladies have been kept constantly in mind, the numerous practical illustrations greatly aiding to a correct diagnosis. **Dr. Charles A. Oliver** says: "I feel I can conscientiously recommend it, not only to the general physician and medical student, for whom it is primarily written, but also to the experienced ophthalmologist. Most surely Dr. Theobald has accomplish d his purpose." *It is the one book on the eye written especially for the physician engaged in general practice.* Octavo of 551 pages, 219 text-illustrations, and 10 colored plates. By SAMUEL THEOBALD, M.D., Clinical Professor of Ophthalmology and Otology, Johns Hopkins University. Cloth, $4.50 net; Half Morocco, $5.50 net.

W. B. SAUNDERS COMPANY **Philadelphia and London**

LISTERINE

The original antiseptic compound

(Awarded Gold Medal (Highest Award) Lewis & Clark Centennial Exposition, Portland, 1905; Awarded Gold Medal (Highest Award) Louisiana Purchase Exposition, St. Louis, 1904; Awarded Bronze Medal (Highest Award) Exposition Universelle de 1900, Paris.)

Listerine is an efficient and very effective means of conveying to the innermost recesses and folds of the mucous membranes that mild and efficient mineral antiseptic, boracic acid, which it holds in perfect solution; and whilst there is no possibility of poisonous effect through the absorption of Listerine, its power to neutralize the products of putrefaction (thus preventing septic absorption) has been most satisfactorily determined.

LISTERINE DERMATIC SOAP

A saponaceous detergent for use in the antiseptic treatment of diseases of the skin

Listerine Dermatic Soap contains the essential antiseptic constituents of eucalyptus (1%), mentha, gaultheria and thyme (each ½%), which enter into the composition of the well-known antiseptic preparation Listerine, while the quality of excellence of the soap-stock employed as the vehicle for this medication, will be readily apparent when used upon the most delicate skin, and upon the scalp. Listerine Dermatic Soap contains no animal fats, and none but the very best vegetable oils; before it is "milled" and pressed into cakes it is *super-fatted* by the addition of an emollient oil, and the smooth, elastic condition of the skin secured by using Listerine Dermatic Soap is largely due to the presence of this ingredient. Unusual care is exercised in the preparation of Listerine Dermatic Soap, and as the antiseptic constituents of Listerine are added to the soap after it has received its surplus of unsaponified emollient oil, they retain their peculiar antiseptic virtues and fragrance.

A sample of Listerine Dermatic Soap may be had upon application to the manufacturers—

Lambert Pharmacal Co., St. Louis, U. S. A.

In the Treatment of Rheumatism

RHEUMACILATE WILL BE FOUND INVALUABLE.

It quickly reduces the Pyrexia and Relieves the Pain of Articular and Muscular Rheumatism.

"RHEUMACILATE" is the best of the salicylic group of remedies, possessing all of their virtues, but without their disadvantages. It does not derange the stomach, or depress the heart, AS IT IS USED LOCALLY.

Sucessfully used in Rheumatism, Neuralgia, Myalgia, Sciatica, Orchitis and Epididymitis.

Fifty cents per ounce, postage prepaid, delivery guaranteed.
Descriptive Circulars on application.

FRIES BROS. Manufacturing Chemists
92 Reade St., New York

SANITAS

These preparations are true Disinfectants (Germicides), powerful Deodorizers and free from poisonous and corrosive properties.

FOR THE SICK ROOM "SANITAS" IS PUT UP IN VARIOUS FORMS TO MEET EVERY REQUIREMENT.

For samples, prices, etc., apply to

THE "SANITAS" CO., Ld., 636 to 642 West 55th St., NEW YORK CITY.

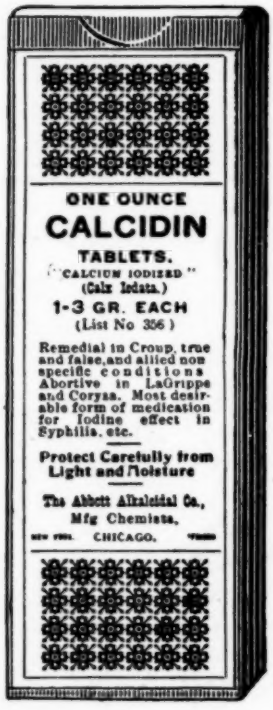
CALCIDIN

CALCIUM IODIZED (ABBOTT): (Calx Iodata)

The Best Remedy for Catarrhal Croup, La Grippe, Colds, etc. Also, with Nuclein and Mercury Biniodide, for Glandular Swellings

CALCIDIN (Calcium Iodized) is the most potent, non-irritating preparation of Iodine available in practical therapeutics. This powerful, safe and long-needed remedy must not be confused with the practically inert Calcium Iodide of commerce. It is a special and peculiar preparation of remarkable efficiency, carrying 15 per cent of available Iodine.

Calcidin (Abbott) liberates more available Iodine with less irritation than any other known preparation, and for this and other reasons is unquestionably the best form in which this remedy can be used.


ONE OUNCE
CALCIDIN
TABLETS.
"CALCIUM IODIZED"
(Calx Iodata.)
1-3 GR. EACH
(List No 356)
Remedial in Croup, true and false, and allied non specific conditions Abortive in LaGrippe and Coryza. Most desirable form of medication for Iodine effect in Syphilis, etc.
Protect Carefully from Light and Moisture
The Abbott Alkaloidal Co.,
Mfg Chemists,
CHICAGO.

Calcidin is a real "wonder-worker," in Croup, both true and false and allied exudative conditions. It is of great value in Diphtheria, used in connection with Calcium Sulphide, Antitoxin and other indicated remedies. It is most successful as an abortive for La Grippe, cold in the head, catarrhal bronchitis, hoarseness, asthma, whooping-cough and all throat affections; and as a resolvent in incipient phthisis. It is also highly useful in fibroid tumors and other hyperplasias, and is to be preferred to potassium iodide in syphilis, struma, etc.

Universally Successful.

"I have used Calcidin three years for colds, bronchitis and all bronchial troubles in children, and find it universally successful."
———, Indiana. Dr. C. S. B.

If there ever was a specific medicine Calcium Iodized (Calcidin) is for croup and hoarseness.
———, Indiana. Dr. E. M. D.

Doctor, if you have not yet become acquainted with this valuable remedy, let us send you literature and samples at once, or send a trial order, money back if not satisfied.

Style and Price: Per ounce, one-third grain tablets, or powder, per bottle, 50 cents. Two-grain tablets, bottles of 100, 50 cents. Five-grain capsules, pure powder, per bottle of 50, 50 cents. Per dozen, either style or assorted, $5.00. Delivery prepaid for cash with order.

Three bottles, either kind or assorted, once only and postpaid to any physician as "samples," on receipt of one dollar. (Attach this advertisement to your order). Money back if not satisfied.

THE ABBOTT ALKALOIDAL CO.

Headquarters for
Alkaloidal Granules, Tablets and Allied Specialties

NEW YORK BOSTON CHICAGO OAKLAND SEATTLE

VIN MARIANI NOT A COCAINE PREPARATION

Regarding the Illinois State Law regulating the sale of Cocaine, it is a pleasure again to have verified in official form, that Vin Mariani is not a cocaine preparation and that the law in no way covers or applies to it. ❦ This decision recently rendered is based upon analyses made by Chemists of high professional standing, at request of the Illinois authorities, and confirm former investigations of the Ohio Pure Food Commission, and the Pennsylvania State Board of Health; also conforms with examinations compulsory in Germany, Russia and with the French Governmental Analysis, a copy of which is attached to each bottle of Vin Mariani, as a guarantee of reliability. ❦ ❦ Thus the high standard of Vin Mariani established nearly half a century ago, continues unaltered and is a justification for the distinctive and unusual endorsements which physicians everywhere have accorded this unique restorative-tonic.

REWARD OF ONE THOUSAND DOLLARS

Having learned of certain false statements against the purity of Vin Mariani tending to prejudice and intimidate dealers and users of this preparation, and reflecting upon the intelligence of thousands of reputable physicians who have endorsed Vin Mariani from experience in their practice, we publicly announce that we shall jealously guard and legally protect our interests against all such malicious attacks.

A REWARD OF ONE THOUSAND DOLLARS IS OFFERED FOR INFORMATION LEADING TO ARREST AND CONVICTION OF ANY PERSON SPREADING MALICIOUS FALSEHOODS, LIBELOUS OR DEFAMATORY REPORTS INTENDED TO DISCREDIT THE OLD ESTABLISHED REPUTATION OF OUR HOUSE OR THE INTEGRITY OF VIN MARIANI.

41 Boulevard Haussmann, Paris, France.

MARIANI & COMPANY, 52 West Fifteenth St. New York.

Analysis, Formula and Literature to physicians on request.

Pyrenol

Chemical Compound of Salicylic Acid, Thymol and Benzoic Acid

Unites all the virtues of its constituents
but never causes gastric or renal irritation

In **Asthma, Bronchitis, Pertussis**—a prompt **Expectorant** and **Sedative.**
In **Pneumonia, Influenza**—a slow, steady **Antithermic** and **Cardiotonic.**
In **Rheumatism, Neuralgia** (migraine, sciatica)—a quickly-acting **Analgesic.**

Arhovin

Chemical Compound of Diphenylamine and Thymyl-Benzoic Acid

New gonocide for internal and topical use
free from the drawbacks of the older remedies

Acute Gonorrhea is **arrested,** or its course rendered **brief** and **painless.**
Chronic Gonorrhea, even in the **female,** is soon **improved** and finally **cured.**
Given in **capsules, urethral bougies, vaginal globules** or by **injection.**

LITERATURE and SAMPLES from

SCHERING & GLATZ,
58 Maiden Lane, New York.

OUR PACKAGE

The serum syringe container which we are now supplying meets the demands of the medical profession more fully than any similar device of which we have knowledge. It is hermetically glass-sealed at both ends—no rubber stoppers are used. The needle forms a firm connection with the glass by means of a metal collar externally threaded. It is sterilized before packing. A flexible rubber connection is supplied with each container. Our serum package combines safety and convenience in the highest degree.

A RELIABLE ANTITOXIN

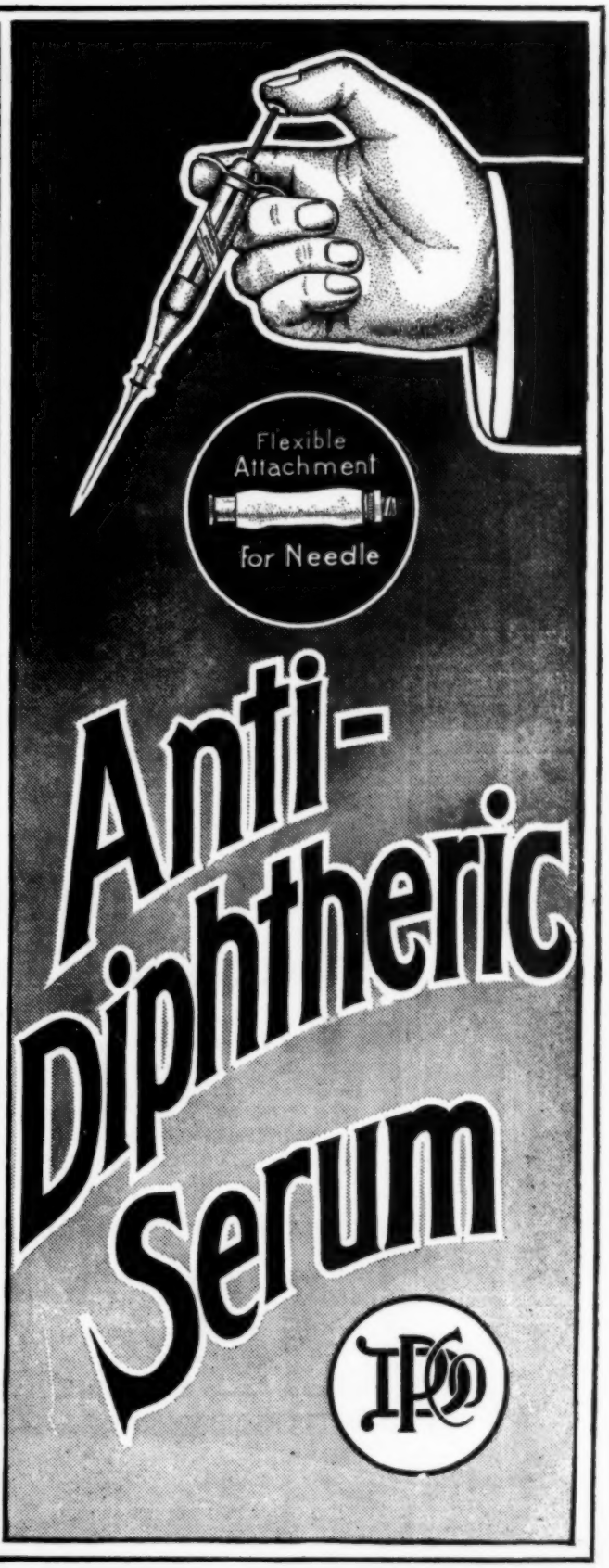
Our Antidiphtheric Serum is accurately standardized, elaborate physiologic tests being employed to determine its potency and uniformity. Its purity is assured by our scientific methods of manufacture (indeed, it would be difficult to imagine a safeguard which we do not apply). Absence of pathogenic bacteria is further established by careful bacteriologic examinations of the finished serum before it leaves the laboratory.

Bulbs of 500, 1000, 2000, 3000 and 4000 units.

WE ACCEPT OLD STOCK IN EXCHANGE FOR FRESH SERUM.

PARKE, DAVIS & CO.

HOME OFFICES AND LABORATORIES
DETROIT, MICH., U. S. A.



THIOCOL

THIGENOL

Roche

Sodium Salt of the Sulphonic Acid of a Synthetic Sulpho Oil.

The one Soluble Sulphur Compound that is Odorless on use.

Thigenol is a powerful antiphlogistic, with marked antiseptic and anodyne actions. It is largely and successfully employed in skin diseases and gynecological affections. Thigenol is reported by many physicians to be the full therapeutic equivalent of the older sulphur compounds without their nauseous, clinging odor.

Roche

Potass. Guaiacol-sulphonate.

A Soluble Form of Guaiacol.

Odorless; non-irritating; readily assimilated.

Thiocol may be used to advantage wherever creosote or guaiacol are indicated. With Thiocol a physician may continue treatment as long as is deemed necessary. But with creosote or guaiacol, both of which have a repulsive odor and acrid taste, treatment is frequently interrupted—in somecases suspended entirely. Clinical reports, covering a period of seven years, indicate the value of Thiocol in incipient tuberculosis, bronchitis, winter coughs, typhoid fever, pneumonia, malaria. Thiocol is procurable in three forms:—Powder; 5-grn. Tablets; Syr. Thiocol Roche.

DIGALEN

Digitoxin. Soluble, Cloetta.

A Distinct Advance in Digitalis Medication.

A reliable, non-cumulative heart tonic and diuretic. Marketed only in solution in ½-oz. vials because of infinitesimal dosage. 1 Cc. (16.9 min.) Digalen —.0045 grn. amorphous digitoxin—1½ grn. digitalis.

Digalen may be administered per os, by intravenous or subcutaneous injection, and by enema.

AIROL

Roche

Bismuth Oxyiodogallate.

The physician who wants to avoid iodoform and yet escape an inefficient substitute should try Airol. It is an excellent wound antiseptic; odorless; non-toxic.

For samples and literature:—Mark the name of the medicament of which you desire a sample; cut out this ad, and mail it to us with your address.

THE HOFFMANN-LA ROCHE CHEMICAL WORKS, 51-53 Maiden Lane, New York. A

Pain Without Peril

THE Quarterly Journal of Inebriety, says:—"Antikamnia Tablets have become one of the standard remedies. We have used them with excellent results to quiet the pain following the withdrawal of morphia. We have NEVER SEEN A CASE OF ADDICTION TO ANTIKAMNIA, hence we prize it very highly as one of the most valuable remedies for DIMINISHING PAIN WITHOUT PERIL"

AK

"Cheer thy Spirit with this Comfort"

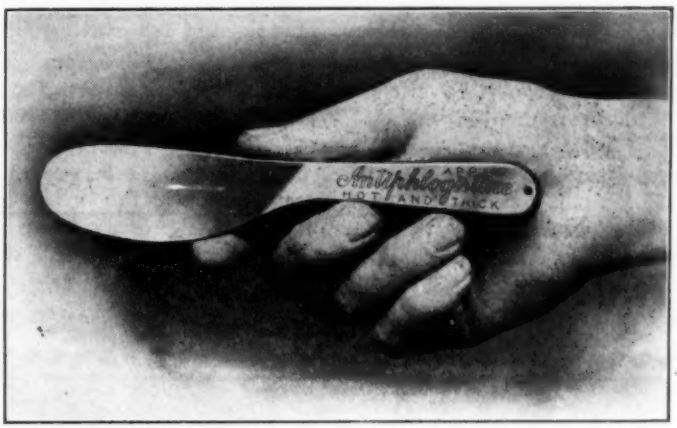
MADE ONLY BY.....

The Antikamnia Chemical Company

ST. LOUIS, U. S. A.

Antiphlogistine

(Inflammation's Antidote)



THE SPATULA

oftentimes will make unnecessary

THE SCALPEL

if it be used for the application of ANTIPHLOGISTINE hot and thick in the various inflammatory and congestive conditions.

ANTIPHLOGISTINE

DEPLETES INFLAMED AREAS
FLUSHES THE CAPILLARIES
STIMULATES THE REFLEXES
RESTORES THE CIRCULATION
BLEEDS BUT SAVES THE BLOOD

THE DENVER CHEMICAL MFG. CO.

CHICAGO
DENVER
SAN FRANCISCO
NEW YORK
LONDON
SYDNEY
MONTREAL

SYR. HYPOPHOS. CO., FELLOWS

Contains the Essential Elements of the Animal Organization—Potash and Lime;

The Oxidising Agents—Iron and Manganese;

The Tonics—Quinine and Strychnine; (each fluid drachm contains the equivalent of 1-64th grain of pure Strychnine).

And the Vitalizing Constituent—Phosphorus; the whole combined in the form of a Syrup with a **Slightly Alkaline Reaction.**

It Differs in its Effects from all Analogous Preparations; and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

It has Gained a Wide Reputation, particularly in the treatment of Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

Its Curative Power is largely attributable to its stimulant, tonic, and nutritive properties, by means of which the energy of the system is recruited.

Its Action is Prompt; it stimulates the appetite and the digestion, it promotes assimilation and it enters directly into the circulation with the food products.

The prescribed dose produces a feeling of buoyancy, and removes depression and melancholy; hence the preparation is of great value in the treatment of mental and nervous affections. From the fact, also, that it exerts a tonic influence, and induces a healthy flow of the secretions, its use is indicated in a wide range of diseases.

This preparation can be procured at all chemists and druggists, everywhere.

DURING PREGNANCY

many experienced obstetricians prescribe

Lithiated Sorghum Comp.

in 1 to 2 fldrm. doses well diluted t. i. d

They claim that it freely flushes the kidneys, prevents dropsy BEFORE and lessens the liability to puerperal eclampsia AFTER delivery. Their case books prove it.

To prove our faith in it we will send you ***one pound free*** for trial if you pay the expressage from either Baltimore, New York, Chicago, New Orleans, St. Louis or Atlanta. ℞ on the label.

SHARP & DOHME

3 AGES OF WOMEN

The *parturient* period is one of the most critical stages of a woman's life. In obstetrical work both prior to and following delivery

Hayden's Viburnum Compound

HAS PROVEN OF INESTIMABLE SERVICE.

In Threatened Abortion it exercises a sedative effect upon the nervous system, arrests uterine contraction and hemorrhage, and prevents miscarriage.

The Rigid Os, which prolongs labor and rapidly exhausts the vitality of the patient, promptly responds to the administration of H. V. C., and no less an authority than

H. Marion Sims said

"I have prescribed Hayden's Viburnum Compound in cases of labor with *Rigid Os* with good success."

After-pains. The antispasmotic and analgesic action of H. V. C. makes it of especial service in this, the third stage of labor. It modifies and relieves the distressing after-pains and by re-establishing the tonicity of the pelvic arterial system it prevents dangerous flooding.

Hayden's Viburnum Compound contains no narcotic nor habit forming drugs. It has enjoyed the confidence and support of the medical profession for over a quarter of a century. Its formula has been printed thousands of times and will be cheerfully furnished with literature covering its wide range of therapeutic uses on request.

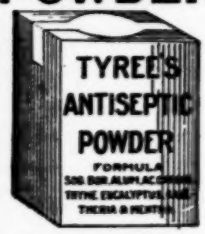
Samples for clinical demonstration if express charges are paid.

NEW YORK PHARMACEUTICAL CO., Bedford Springs, Mass.

TYREE'S ANTISEPTIC POWDER

INDICATIONS

CATARRHAL AND INFECTED CONDITIONS OF THE MALE AND FEMALE GENITAL ORGANS—VAGINAL, URETHRAL, RECTAL, NASAL, ORAL, PHARYNGEAL, INTESTINAL, AS WELL AS PRICKLY HEAT, POISON OAK, LUPUS VULGARIS DECUBITUS, BURNS, ULCERS, EXCORIATIONS, ABRASIONS, AND OTHER DISEASED CONDITIONS OF THE SKIN.



TWO SIZES
25¢ and $1.00

Antiseptic Saving

TYREE'S PULV. ANTISEPTIC COMP. does not contain water, alcohol or any "filling;" patient adds that. He does not pay for anything that is not necessary. 25 cents' worth will make 2 gallons of Standard Antiseptic Solution that would otherwise cost $1.00 or more. Among Genito-Urinary Specialists, TYREE'S ANTISEPTIC POWDER is preferred to the usual remedies on account of its simple and effectual action directly on the mucous membrane of both male and female

GENITAL ORGANS.

This is the most economical means at hand for getting the full therapeutic value out of the best known agents in LEUCORRHOEA and GONORRHOEA. It is also the safest and surest means. Literature descriptive of its application together with clinical reports and a most interesting booklet entitled, "George Washington's Physician, Their Friendship and His Treatment During the President's Last Illness," will be mailed free of cost upon request.

J. S. TYREE, Manufacturing Chemist,
WASHINGTON, D. C.

THE MARVEL SYRINGE

Was Awarded the Gold Medal, Diploma and Certificate of Approbation

By the SOCIÉTÉ D'HYGIENE DE FRANCE, AT PARIS, OCTOBER 9, 1902, for the

MARVEL

"Whirling Spray" Syringe

As the latest and best syringe ever invented TO THOROUGHLY CLEANSE THE VAGINA.

THE MARVEL, by reason of its peculiar construction, DILATES AND FLUSHES THE VAGINAL PASSAGE with a volume of whirling fluid, WHICH SMOOTHS OUT THE FOLDS AND PERMITS THE INJECTION TO COME IN CONTACT WITH ITS ENTIRE SURFACE, INSTANTLY DISSOLVING and WASHING OUT ALL SECRETIONS and DISCHARGES.

Physicians should recommend the **MARVEL SYRINGE** in all cases of *Leucorrhoea, Vaginitis* and *all womb troubles*, as it is warranted to give entire satisfaction.

All druggists and dealers in surgical instruments sell it. For literature, address,

MARVEL COMPANY, 44 E. 23d St., New York

Buffalo LITHIA WATER

MEDICAL OPINIONS OF BUFFALO LITHIA WATER

Dr. J. Allison Hodges, *Pres. University College of Medicine, and Prof. of Nervous and Mental Diseases, Richmond, Va.* "In albuminuria of Pregnancy this water is one of the very best alkaline diuretics, and with milk diet, is one of my sheet anchors.

Edward M. Eidherr, M.D., Ph.D., Ch.D., Ph.G., *University of Vienna, Chicago, Ill.:* "I have found BUFFALO LITHIA WATER of undoubted service in the treatment of Uric Acid Gravel, Chronic Rheumatism and Gout."

Dr. William A. Hammond, *Surgeon-General (retired) U. S. Army, formerly Professor of Diseases of the Mind and Nervous System in the University of New York, etc., Washington, D. C.:* "I have had considerable experience with BUFFALO LITHIA WATER in the treatment of Bright's Disease. I have witnessed the Albuminuria of the affection, and also casts of the renal vessels, disappear on the use of the water, and this not only in a single case, but in several of which I have full notes. It must in these cases be taken in large quantities, and its use continued for a considerable time."

Additional Testimony Upon Request to the Proprietor, Buffalo Lithia Springs, VIRGINIA

Bausch & Lomb Electric Centrifuges

Electricity is the ideal motive power for the centrifuge. It is the most convenient, noiseless and reliable—**but** electricity is expensive, unless the motor is properly constructed, **and** the speed is deceptive, unless you **know** that the motor will give the desired revolutions per minute. Bausch & Lomb Electric Centrifuges are guaranteed to give the proper speeds for Urine, Blood, Sputum and milk examination, and to be the most economical of current of any yet produced. Ball bearings throughout.

Direct or Alternating Current

windings for the various voltages, as desired.

Send for Brochure, "Centrifugal Analysis," which also includes descriptive price list.

Bausch & Lomb Optical Co.
ROCHESTER, N. Y.

New York. Boston. Washington. Chicago. San Francisco.

Buffalo LITHIA WATER

MEDICAL OPINIONS OF BUFFALO LITHIA WATER

Geo. Ben. Johnston, M.D., LL.D., *Prof. Gynecology and Abdominal Surgery, University of Virginia, Ex Pres Southern Surgical and Gynecological Assn., Ex-Pres Virginia Medical Society and Surgeon Memorial Hospital, Richmond, Va.:* "Almost any case of Pyelitis and Cystitis will be alleviated by it, and many cured."

Dr. Lewis Bosher, *Richmond, Va., Professor of Surgery, Medical College of Virginia:* "I have frequently used BUFFALO LITHIA WATER with the *most satisfactory results* in all conditions where an active diuretic is indicated, and have found it especially serviceable in Rheumatic and Gouty Conditions, Albuminuria of Pregnancy, Catarrh of the Bladder, and other diseases affecting the urinary organs."

Dr. Stuart McGuire, *Richmond, Va., Surgeon in charge of St. Luke's Home Professor of Principles of Surgery, and of Clinical Surgery, University College of Medicine Richmond, Va., etc.:* "In cases of headache from lithæmia of headache from passive congestion of the kidneys, of strangury from concentrated urine, and a host of other ills, I always advise BUFFALO LITHIA WATER."

Dr. P. B. Barringer, *Chairman of Faculty and Professor of Physiology University of Virginia, Charlottesville, Va.* "After twenty years' practice I have no hesitancy in stating that for prompt results I have found nothing to compare with BUFFALO LITHIA WATER in preventing Uric Acid Deposits in the body."

Additional Testimony Upon Request to the Proprietor, Buffalo Lithia Springs, VIRGINIA

Announcement

By H. K. Mulford Company
Concerning the National Food and Drugs Law

The National Food and Drugs Law, which becomes effective January 1, 1907, requires the maintenance of the standards of the United States, Pharmacopeia, and the standardization of certain crude drugs and preparations thereof.

For years we have anticipated both the United States Pharmacopeia and the Food and Drugs Law, and have standardized all drugs and the preparations thereof requiring standardization in the eighth decennial revision.

In addition to those drugs the standardization of which is made obligatory, we offer a full line of standardized preparations of the following assayed drugs:

Blood Root, Buckthorn Bark, Capsicum, Cascara Sagrada, Cubeb, Digitalis, Ergot, Gelsemium, Ginger, Ignatia, Indian Cannabis, Kola, Lobelia, Mandrake, Quebracho, Rhubarb, Senna and Strophanthus.

The standardization of drugs not only requires a large force of competent chemists and a well-equipped scientific laboratory, but years of preparation and painstaking work. We cheerfully comply with the requirements of the National Law, since for years we have employed a force of scientific experts for standardization and research work.

All preparations made by the H. K. Mulford Company will conform strictly to the new National Pure Food and Drugs Law. Preparations with official names will strictly conform to the United States Pharmacopeial standards. All other preparations will conform to the standards stated in our price-list 1907 Edition—standards established by expert chemists of high standing, and which, in the opinion of the scientific world, are most liable to be adopted by the Committee of Revision when assay methods for such drugs are incorporated in future editions of the United States Pharmacopeia.

The general management and ownership of the business of the H. K. Mulford Company are controlled by graduates of pharmacy, and we accept full responsibility for every preparation bearing our label, the following being a copy of the guaranty which will appear on all products of our laboratory:

"Guaranteed under the Food and Drugs Act, June 30th, 1906. **Guaranty No. 172."**

H. K. MULFORD COMPANY

Philadelphia, December 1, 1906

SELECTIONS

The Chemistry of Digestion.—Dr. Chas. D. Aaron (Detroit Med. Jour.) says: "Pawlow has proved that the reaction of the food influences the closing and relaxation of the pyloric sphincter. Free hydrochloric acid in the stomach opens the pylorus. This acid acting on the intestinal mucosa reflexly closes the pylorus. Just as the pylorus closes, the pancreatic juice and bile gradually neutralize the acid chyme and this allows the free acid in the stomach to again open the pylorus and a new supply of the stomach contents enter the duodenum. On account of this great acidity the intestine is never overburdened with too much food at one time. Just as soon as a certain amount of the acid stomach contents enters the duodenum the pylorus closes to prevent any more from passing through until the pancreatic juice has had time to act upon the food in the intestine. Proteids take up a great deal of hydrochloric acid and require a longer time to give a reaction for free hydrochloric acid than the carbohydrates. For this reason the pylorus opens sooner after a carbohydrate diet than a proteid diet. This knowledge is extremely valuable to us in the treatment of disease. In cases where hydrochloric acid is secreted in insufficient quantitity the patients are susceptible to diarrhea. We reason that when the pylorus relaxes and allows the stomach contents to empty itself into the duodenum, there is not enough acid in the duodenum to reflexly close the pylorus, and thus the duodenum is over-burdened and the intestinal mucosa is irritated, which leads on to a condition that superinduces a chronic diarrhea. The acid chyme poured into the duodenum stimulates the flow of the pancreatic juice. The emulsification of fat in the intestine can only take place in an alkaline medium."

Pyrenol.—Eulenburg's "Encyclopadische Jahrbucher der gesamten Heilkunde," 1906, says: "It continues to demonstrate its trustworthiness, especially in bronchial asthma and pertussis. It prevents pulmonary complications and loosens expectoration, as for instance in bronchial catarrh. In angina pectoris it exercises a sedative effect. It can be used in phthisis cases, but it may be well to avoid it if hæmoptysis threatens."

The first application of

Resinol Ointment

in itching and irritable conditions produces a feeling of comfort to the sufferer never before experienced.

It is the standard remedy for Eczema and acute inflammations of the skin and muco cutaneous margins, and is a superior dressing for Burns, Boils, Skin Abrasions and superficial wounds and sores.

IT IS THE RECOGNIZED SPECIFIC FOR PRURITUS ANI, ITCHING PILES, ETC.

As a nutrient Soap for the Skin

Resinol Soap

is without a parallel.

It nourishes the underlying tissues, prevents congestions and eruptions, obviates waste and atrophy, thus preventing wrinkling and cracking of the skin. It is superior to all others for the Hair and Scalp.

SAMPLES SENT ON REQUEST.

RESINOL CHEMICAL COMPANY,
BALTIMORE, MD., U. S. A.

GREAT BRITAIN BRANCH:
97 New Oxford Street,
London, W. C.

CHAS. MARKELL & CO.,
Agents for Australasia,
Sydney, N. S. W.

Eye Treatment using Fluid Applicator No. 12.

WRITE US TODAY or ask your Supply House to show you

The Physician's Vibragenitant

—— AND ——

The Fluid Vibratory System,

a true Vibrator giving harmonious vibrations that effect vital processes because they are natural vibrations. Don't confuse true vibration and pounding, for one produces the results you expect, and the other produces——

Our FLUID VIBRATORY SYSTEM enables every physician to treat sensitive parts safely and well. Complete outfit $75.00 others from $40 00 up. Send for full particulars and valuable information at once.

Treatment of the Eustachian Tubes with Fluid Applicator No. 10.

SAM J. GORMAN & CO., Vibratory and Mechanical Specialties for Physicians, 153 S. Jefferson St., Chicago, Ill.

Merck's Merits in the Manufacture of Morphine

THE work of Seguin (1804), of Serturner (1805), of Dumas and Pelletier (1823) was scientific to the highest degree. For the sake of knowledge they investigated perseveringly until MORPHINE was thoroughly defined.

E. MERCK, personally acquainted as he was with investigators, shared their enthusiasm. In addition to their erudition, he had the foresight to recognize the importance of MORPHINE to medicine and, despite the advice of more conservative friends, he undertook the manufacture of MORPHINE as early as 1827.

The clearness of his foresight and the wisdom of his step were quickly proved by the host of other manufacturers who, after witnessing his success, could without risk to themselves follow MERCK'S lead.

Specify MERCK'S on your prescriptions for MORPHINAE SULPHAS

TANPHENYFORM

WARNER & CO.

KNOWN PREVIOUSLY AS TANFORMAL.

Energetic, Intestinal, Astringent and Antiseptic.

Liberates Tannic Acid, Phenol and Formaldehyde, due to a gradual and continuous chemical reaction, as soon as it comes in contact with the Alkaline intestinal secretions.

CONTROLS the DIARRHEA of TYPHOID FEVER and other infectious diseases and inhibits the development of the micro-organism and astringes the congested and inflammed mucosa, including the infected and ulcerated peyer's patches, thus, it greatly limits the possibility of hemorrhage and perforation.

Does *not* disorder digestion *nor* derange the stomach, is eliminated by the bowels and kidneys.

The following clinical report from a Physician in Kansas illustrates its exceptional Therapeutic value.

"TANPHENYFORM (Tanformal) controlled diarrhea in Typhoid when everything else failed."—DR. G———

SAMPLE TO DOCTORS ON REQUEST.

WM. R. WARNER & CO.,

PHILADELPHIA.

Branches: New York, Chicago, New Orleans.
Distributing Points: Los Angeles and Oakland, Cal.

SELECTIONS

Treatment of Puerperal Fever with Anti-Streptococcus Serum.—Ed. Martin considers the two new forms of treatment for puerperal sepsis that have come into vogue during the last few years: ligation of the vessels or total extirpation of the uterus, and the use of serum injections. The operative procedures are possible only in hospitals, while the serum can be easily employed by every practitioner. The author has employed the serum of Menzer in the following manner: As soon as the rectal temperature exceeds 38.5° the secretion of the uterus is examined microscopically. If no gonococci are found, 20 c. c. of serum are given at once. If the temperature still remains above 38° on the following day, another dose of 20 c. c. is given, and, if necessary, a third one on the day after. If the fever persists beyond the sixth day, another course of injections of 20 c. c. each is given for three days. No cases were treated where there was an extension of the process to the tubes, parametrium, or along the veins. The action of the serum was on the whole very favorable, since the patients treated did not have such high fever and were not sick for so long a time as those who did not receive any serum. Two patients died despite the use of the serum, but these suffered from an exceptionally severe form of sepsis. Bad after-effects were not seen, and the slight eruption which occasionally developed disappeared in a short time. The largest amount injected was 120 c. c. —Berl. klin. Woch., July 16, 1906.

Iothion has been employed with marked success in the treatment of late or tertiary syphilitic lesions of the skin, mucous membranes and bones. Favorable results are also reported from its use in the treatment of chronic inflammations of the joints, periostitis, glandular swellings, epididymitis, lupus and parasitic affections of the skin, endometritis, pruritus vulvæ and esysipelas. As an application to mucous membranes it is recommended in the treatment of gingivitis, stomatitis, alveolar periostitis and syphilitic lesions of the mouth and pharynx.

In cases in which it is desirable to obtain the more intense constitutional effect of the iodides it has been found an excellent plan to administer sajodin, which is devoid of the unpleasant and injurious features of the iodides, internally in connection with the local use of iothion.

Milk Delusions.—The veteran milk producer, Dr. E. F. Brush, in an interesting little brochure on this subject, says: "Chemically treated milk is in fact embalmed, if there has been enough of the lethal agent added to kill every living microscopic germ in the milk. To a limited extent, this statement holds good with milk that has been sterilized or pasteurized. Of course, sterilizing and pasteurizing does not permanently embalm the milk, but both of these processes kill it. Permanent embalment of a food would mean a total resistance to all digestive processes, as well as to all other biological changes. So I reaffirm what I have so many times affirmed, that fresh, clean living milk from healthy well-cared for cows, is the best food for an infant deprived of the milk of a normal healthy mother. And I say now, with all that is within me, believing that I know the truth of what I say, human ingenuity can never concoct or assemble together nutritive elements that we know are required to properly nourish a baby, in such a manner as to form a perfect food to feed a young child. If these conclusions are correct, then the modifying and otherwise bringing together nutritive elements that are not combined vitally is one of the milk delusions still prevailing. * * *

"But just now, for the first time after all the years that I have been studying and watching the production of milk, especially for infants, I see a gleam of sunshine, in fact the first evidence of common sense, when Dr. Darlington, the present Health Commissioner of New York City, ignoring chemists, sanitarians, and theorists, is simply sending his own men to the dairies to see for themselves what the milkmen are doing, whether they are allowing dirt to get into the milk, are adding chemicals or infecting it directly by diseased cows. And also demanding the dealers to label 'sterilized,' 'pasteurized' and 'preserved milk.' If this kind of supervision is continued by the present Department of Health of the City of New York there will be less milk delusions, killing thousands of infants—*'Secundum artem.'*"

Used Dolomol-Ichthyol 10% in ulcers of the lower limbs with excellent results.—J. Michaelis, M.D., Brooklyn, N. Y.

Cram's Quick Reference Atlas and Gazetteer of the World, edited by Dr. Eugene Murray Aaron, is a most useful and handy little book for the desk.

SELECTIONS

For Protection of Health.—Dr. Eugene H. Porter, State Commissioner of Health, gave an address upon the work and scope of the State Department, and the changes that should be brought about for the protection of the public health at Syracuse October 25. He said there were now in this State 1,427 health officers. Dr. Porter said that the appropriation last winter was only $75,000 for the work of the department. Pennsylvania last year appropriated $350,000 for its health department.

During the last two months 154 cans of 138 kinds of meats and meat products have been examined microscopically, physiologically or chemically for the purpose of determining the extent to which such products are poor in quality or of varying nutritive value and also to ascertain the extent to which preservators were used in their preparation.

During the past summer the department has been thoroughly investigating a large number of summer resorts in the State. Personal investigations into the sanitary conditions of the buildings, the water supply, the method of disposal of the sewage have been made of a large number of hotels and boarding houses. A blank form which, when filled out by the owner or proprietor of the hotel or boarding house gives full information regarding the sanitary conditions, has been mailed to hundreds of different hotels, and much information has been secured.

The importance of this work can be best illustrated by citing a few instances of what has been discovered. In one hotel on Lake George the sewage from the hotel is being discharged in the lake but a short distance away from the intake which supplies the hotel with water. A hotel in the Thousand Islands but a short time ago was taking its water supply from a bay in which there was little or no current, and into which the sewage from hotels accommodating hundreds of people was discharged. A hotel on Long Island was found where the sewage from the hotel was discharged into a series of cesspools placed along the front of the building, directly under the windows of the rooms occupied by guests. The cesspools were but scantily covered, and the ground is saturated with filth.

The water supply has received particular attention, and the department has learned with pleasure that in the better class of hotels and boarding houses considerable attention is being paid to this subject by reason of the fact that the guests are insistent upon having a good water supply.

It is the duty of every medical society in this State to take definite measures at short intervals to put before its immediate public, in an attractive and convincing way, the latest and best teachings of modern sanitation. And I may add it is a duty that is especially ours as health officers of the State.

The policy of the department will be as stated at the last conference at Albany. The continued pollution of our lakes and streams must cease. No town or municipality will be allowed to discharge raw sewage into any body of potable water without the most cogent reasons. But by this it is not meant that in a moment the previous policy of the State shall be revolutionized nor to purify at once all our waters. All that we may expect to do is to continue the beginning already made, going forward with increased energy of purpose.

There are several things the State could or might do but there is one thing it must do if it is to educate and safeguard those who need it most. That is to insist upon the registration of all cases of tuberculosis.

The department has already prepared some special circulars of instruction for the people on the communicable diseases. The one on tuberculosis is particularly full. I trust it may meet with your approval when I say that it is my intention, beginning January 1, 1907, to ask every health officer to make a definite and specific report of all cases of tuberculosis occurring within his jurisdiction.

The Local Treatment of Various Catarrhal Affections.—Dr. M. R. Dinkelspiel says: "I find Glyco-Thymoline of value alone in many cases, and a valuable adjunct in all cases. I use it constantly as a mouth wash in cases of secondary syphilis, in mercurial pytalism, in diphtheria, and as a mouth wash throughout many of the acute infectious fevers. In these cases of course it is simply a very valuable adjunct, while in some cases of rhinitis I have found it almost a specific. The impunity with which it may be applied and administered, its blandness, its stimulating local effect when hot and its alkalinity, make it a valuable substance to have in the office as well as in the homes of patients."

K & O DOUCHE FOR THE APPLICATION OF GLYCO-THYMOLINE TO THE NASAL CAVITIES

GLYCO-THYMOLINE

FOR

CATARRHAL CONDITIONS

Nasal, Throat

Intestinal

Stomach, Rectal

and Utero-Vaginal

KRESS & OWEN COMPANY

210 FULTON STREET NEW YORK

Abbott's Saline Laxative

(60 PER CENT MAGNESIUM SULPHATE IN EFFERVESCENT COMBINATION.)

EPSOM SALTS WITH THE "GOOD" IN AND THE "NASTY" OUT

It Does the Business and Never Gripes

KEEP IT ON HAND

ABBOTT'S SALINE LAXATIVE is an ideal refrigerant, anti-ferment, ant-acid, laxative or cathartic, according to dose and conditions. Its use freshens the digestive tract, purifies the blood and aids all other desirable treatment by clearing the field for action. It is pleasant to take, prompt to act and never irritates.

Abbott's Saline Laxative is often substituted (tho' never successfully) by unprincipled druggists. Always specify as above, and see that you get it. Our absolute guarantee is behind every pound. It may be obtained, for office dispensing, of any jobber or direct from our laboratories. Price, in full dozens, $4.00 (retail price, 50c). Delivery prepaid for cash with order.

DOCTOR: If you are not using Abbott's Saline Laxative you are making a mistake. If you continue to neglect it, your mistake will be perpetuated and your own loss will grow steadily greater. There's nothing like it. It is going by the ton. Try it on our say so! Money back if not satisfied.

Abbott's Salithia: Special eliminant in autotoxemia of the rheumatic diathesis and obesity. Same base, C. P. "epsom salts" with one grain of lithium carbonate and gr. 1-250 of colchicine added to each 90 grains—a heaping teaspoonful. Same size and style of package; same dose—q. s. Per full dozen, $3.00; retail price, 75c.

SAMPLES and Descriptive Booklet on request. A full-size package, as illustrated, will be sent to any physician, for personal use and introductory trial, on receipt of 25 cents in stamps; Salithia, 35c; both once only.

THE ABBOTT ALKALOIDAL CO. MANUFACTURING CHEMISTS

50 West Broadway, New York — 1416 EAST RAVENSWOOD PARK, CHICAGO — 9-11 Phelan Building, San Francisco

WE ARE HEADQUARTERS FOR ALKALOIDAL PREPARATIONS AND HIGH-CLASS PHARMACEUTICALS READY TO DISPENSE

Valentine's Meat-Juice

For its **Ease of Assimilation, Power to Sustain and Nourish,** and its **Acceptability to the Stomach,** when other foods are rejected, the **Concentrated, Rapid Blood-Making Nutrient,** Valentine's Meat-Juice, is extensively employed in the treatment of

Influenza and Pneumonia.

J. E. Buchanan, M. D., *Professor Gynæcology, Homœopathic Medical College Missouri, St. Louis:* "I have been using Valentine's Meat-Juice successfully for a long time in my practice, and am using it now as the best available food in the treatment of Influenza."

John L. Daniels, M. D., *Visiting Physician Metropolitan Hospital, New York:* "We have given Valentine's Meat-Juice quite an extensive trial. It is agreeable to the taste, and in cases of debility has proved a valuable adjunct to our therapeutic agencies. I have found Valentine's Meat-Juice very useful in the treatment of Pneumonia with irritable stomach."

Physicians are invited to send for brochures containing clinical reports.

For sale by American and European Chemists and Druggists.

VALENTINE'S MEAT-JUICE COMPANY,

Richmond, Va., U. S. A.

PHYSIOLOGICAL FACTS

¶ The flabby muscle will not get strong unless it has the proper exercise.

¶ You can not expect the stomach to get strong and do its work properly if you simply put in a quantity of pepsin or vegetable ferments after each meal and try and have them do the work the stomach should do.

¶ Treat your disordered digestive apparatus in the same manner as you build up the body. Feed the digestive glands with the enzymes in their original unchanged state.

This is the reason why you should use

PEPTENZYME

(Nucleo-enzymes R. & C.)

in your cases of indigestion and dyspepsia. It is different from all other digestives for it contains the unchanged ferments of all the digestive glands in their original form.

Peptenzyme feeds the glands these ferments and then the glands give off the digestive fluid and so you cure your cases.

Peptenzyme is dispensed in tablets, powder or elixir form, and a sample with literature will be sent upon request, if you want to prove it as we have done.

REED & CARNRICK, - - 42-44-46 Germania Ave.,
JERSEY CITY, N. J.

THE CHAMPAGNE of the 20th Century

MOËT & CHANDON

WHITE SEAL

of the

Marvellously Grand Vintage

of the year

1900

Superior in Quality, Dryness and Bouquet to Any Champagne Produced Since the Great Vintage of 1884

Geo. A. Kessler & Co. - Sole Importers

SELECTIONS

Difficult as pain is to define, it is evident that in its recognition by a sufferer it is always disagreeable, distressing and altogether unpleasant. Moreover, the harmful tendencies of pain are often serious and far-reaching. Aside from its depressant effect on cerebral activity and a consequent depression of all organic functions, there is a growing opinion among observant medical men that pain exercises a very marked influence upon the first attack, the prolongation and extension of inflammation. After careful investigation of a large amount of clinical data the important conclusion has been reached that measures which prevent the extension or transmission of painful impulses to the higher centres, decrease or prevent inflammatory reaction in wounds. Although Professor Speiss bases his opinion on the results observed from the use of local anæsthetics, it is well-known that general analgesics also cause local effects; in fact, that their analgesic action depends to a considerable extent upon their inhibitation of peripheral nerve sensibility; thus the antiphlogistic action of many pain relieving remedies can be accounted for by this same theory. At any rate, Speiss insists that the effect on the sensory nerves is the keynote, since the arresting of painful sensations prevents reflex action upon the vasomotor system, and thereby the most important contributing factor is avoided in inflammatory processes—hyperemia and congestion of the local blood supply. Without hyperemia inflammation rapidly subsides, or in other words, a deficiency of fuel causes the fire to smoulder and finally goes out.

We have received a copy of the English edition of E. Merck's Annual Report (1905) on the Advancements of Pharmoceutical Chemistry and Therapeutics.

A glance at the bibliographical index shows how wide a field is covered by these reports, as well as the character of the literature from which they are abstracted.

Our readers will find the "Report" serviceable when looking for reliable information, in compact form, on the newer therapeutic agents.

Various Uses of Ichthyol.—Ichthyol is one of the most interesting drugs, and yet it is not in such common use as its virtues warrant. It is prepared from an oil which is obtained by the destructive distillation of fossilized fish found in the Tyrolese Mountains (in the Seefeld district). No one has yet given any rationale of its action, yet Hare declares it "the best external treatment of erysipelas that we have." In employing it in erysipelas, the skin is well washed and then anointed with the following:

Ichthyol	½ oz.
Oil citronella	20 drops
Lard or petrolatum	1 oz.

and is then covered with lint upon which the same ointment has been spread.

It is also valuable as an inunction in acute rheumatism, and the same prescription is serviceable. In chronic skin diseases characterized by atony and induration of the deeper layers of the skin, it is of marked benefit. Properly rubbed in, in cases of acute sprains, its effect is almost magical. In fissured nipples, accompanied by induration, an ointment containing 1 part of ichthyol to 4 of lanolin will give prompt relief; it must be carefully wiped off the nipple before each nursing, as the "tarry" odor will frequently cause the child to refuse the breast. Agnew esteemed it highly in cases of lymphatic enlargement.—Albright's Office Practioner, May, 1906.

In a large number of cases it is found that the cells are so fatigued that their impaired activity also extends to their absorbent powers, so that the marked effect of protonuclein is not immediately noticed. This may take a few days or a week or more, but when the cells become charged with the protonuclein the effect is so pronounced as to often cause wonder. Be sure to continue the treatment for a sufficient length of time, when you will obtain the results desired.

Remember the physiological action of protonuclein is threefold. Eliminating poisons from the blood, increasing the functional activity of all glands, and also a direct tissue builder, carrying out its action in this order. It is therefore the rational treatment for all infectious and wasting diseases, as well as for functional inactivity.

Reed & Carnrick, Jersey City, will send full literature on request.

Hydrozone

H_2O_2 9%

Destroys Pus and any Morbid Element with which it comes in contact, leaving the tissues beneath in a healthy condition.

Indorsed and successfully used by leading Physicians in the treatment of

Diseases of the Nose, Throat and Chest.—Open Sores.—Skin Diseases.—Inflammatory and Purulent Diseases of the Ear.—Diseases of the Genito Urinary Organs.—Inflammatory and Contagious Diseases of the Eyes, etc.

In order to prove the efficiency of HYDROZONE, I will send a **25c. bottle free** to any Physician upon receipt of 10c. to pay forwarding charges.

NOTE.—A copy of the 18th edition of my book of 340 pages, on the "Rational Treatment of Diseases Characterized by the Presence of Pathogenic Germs," containing reprints of 210 unsolicited clinical reports, by leading contributors to Medical Literature, will be sent free to Physicians mentioning this journal.

Prepared only by

Charles Marchand

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France).

57-59 Prince Street, NEW YORK.

It's Not Hard

to understand why discriminating physicians prefer Hydroleine to all other forms of cod-liver oil. It's the one emulsion that is prepared by physiological methods to meet physiological needs. It is more digestible, more absorbable, and more utilizable than any other emulsion. It's pancreatized, of course; but that's only half the story. Write for literature and sample. Sold by all druggists.

THE CHARLES N. CRITTENTON CO.,
Sole Agents,
115-117 FULTON STREET, NEW YORK.

Copyright, 1905, The C. N. Crittenton Co.

The World's Best Natural Purgative Water

CARABAÑA

Indicated in all Engorged Conditions of the Alimentary and Circulatory Tracts

GEORGE J. WALLAU, Importer
2 and 4 STONE ST., NEW YORK

SELECTIONS

Citarin in the Uric Acid Diathesis.—Since it has been known that gout depends on the depositon of uric acid, many attempts have been made to find a solvent for this substance. It has been found that formaldehyde forms a compound with uric acid, which is soluble in 300 parts of water, while the acid itself is only soluble in 16,000 parts, and its sodium, salt in 1,130 parts. Allowing formaldehyde to act on the citrate of sodium the anhydro-methylene-citrate of sodium is formed, which has been introduced into therapeutics under the name of citarin. Floret (Deut. Med. Wochensch., January 26, 1905) speaks of this preparation. It is said to be absolutely harmless, to be freely soluble, and to possess, with the addition of a little sugar, a taste like lemonade. Floret has an experience of its action in six cases, and gives the details of each. In each case other remedies were first tried without effect, and in two the diagnosis of gout was only made when it was found that antirheumatic and other remedies proved useless, and that citarin acted promptly. Even in cases of nephrolithiasis, and of extremely chronic gout, the preparation did its work well. He employed it in doses of 2 grams three or four times a day. In conclusion, he recommends its further use on the ground that it acts very completely and quickly, that it is harmless, and that both in acute gout and in the acute exacerbations of chronic gout it may be regarded as the best drug which we possess. —British Medical Journal, April 8, 1905.

A Recipe for Sanity.

(The late Henry Rutherford Eliot in the November Century.)

Are you worsted in a fight?
Laugh it off.
Are you cheated of your right?
Laugh it off.
Don't make tragedy of trifles,
Don't shoot butterflies with rifles—
Laugh it off.

Does your work get into kinks?
Laugh it off.
Are you near all sorts of brinks?
Laugh it off.
If it's sanity you're after,
There's no recipe like laughter—
Laugh it off.

—Exchange.

The alkaloidal yield of coca varies with the quality as well as with the variety of leaf used. The large Bolivian leaf being rich in cocaine to the exclusion of the other alkaloids, is employed by chemists for the extraction of cocaine, while the small leaf varieties inversely being low in cocaine and rich in aromatic bodies and those alkaloids which act upon muscle, are employed medicinally for such physiological properties. A blending of these latter varieties of aromatic coca is employed in the preparation of Vin Mariani. It is the refinement of selection of appropriate coca from long years of experience, and skill in its preservation and manufacture, to which this unique tonic owes its restorative properties.—The Coca Leaf, March, 1905.

For the first time the medical profession can now adequately account for the well-known action of Phenalgin in correcting and reducing inflammatory processes. This remedy exerts a very positive and prompt action on the sensory nerves, directly preventing the conduction of painful sensations. Reflex action that otherwise would effect the blood capillaries, does not occur, and the circulation unobstructed by congestion can re-establish normal conditions in the tissues.

Clinton Cascara Active

Does not Gripe

The most Active palatable Cascara

SURE AND SAFE LAXATIVE
FOR BOTH CHILDREN AND ADULTS
AFFORDS PERMANENT RELIEF IN
CHRONIC CONSTIPATION

BRISTOL-MYERS CO.
MANUFACTURING CHEMISTS.
BROOKLYN, ——NEW YORK.

ALEXANDER METHOD.

Supplied to Medical Profession Only.

Hospital Records and other material supplied to Physicians upon application.

ALEXANDER SANATORIUM,
543 Boylston Street, Boston, Mass., U. S. A.

W. A. FISHER, M.D., President — A. G. WIPPERN, M.D., Vice-President

Post-Graduate Instruction

IN

Diseases of the Eye, Ear, Nose and Throat and Fitting of Glasses.

Open the year round.

Write for announcement to J. R. HOFFMAN, M. D., Secretary.

CHICAGO EYE, EAR, NOSE AND THROAT COLLEGE
206 EAST WASHINGTON STREET, CHICAGO

1848 **HAHNEMANN** 1906

Medical College and Hospital

PHILADELPHIA, PA.

Oldest Homœopathic Medical College in the World.
Graduates number 2,851.
Four Years Graded Course.
Practical Work in All Departments.
Clinical Facilities Unequalled.
Bedside Instruction in Medicine, Surgery and Obstetrics
Announcement sent on application.

HERBERT L. NORTHROP, M.D., Dean.
CHARLES MOHR, M.D., Registrar.

New York Post-Graduate Medical School and Hospital

SECOND AVENUE AND TWENTIETH STREET.

University of the State of New York.

Autumn and Winter Sessions - - 1906–1907.

The Post-Graduate Medical School offers the very best of facilities to Practitioners of Medicine and recent graduates. Every Department of Medicine and Surgery is taught. During the last year the facilities in the Laboratory have been largely increased, so that better opportunities are given for the study of Pathology and Bacteriology. The instruction is entirely personal and demonstrative. The Hospital under the same roof with the School contains 216 beds. There is also an Annex for the demonstration of the treatment of tuberculosis, with eight beds. A Dispensary for the care of tuberculosis patients engaged in their daily occupations is also maintained and instruction is given in this Dispensary in the early morning and early evening. There are four vacancies in the House Staff annually, which are filled by competitive examination.

For further particulars, address **JAMES N. WEST, M.D., Secretary of the Faculty,**

D. B. ST. JOHN ROOSA, M.D., LL.D., President. SECOND AVENUE AND TWENTIETH STREET, NEW YORK CITY.

"INTERPINES"

is a beautiful, quiet, RESTFUL, HOMELIKE place devoted to the care and treatment of nervous patients who require environment differing from that of their own homes.

F. W. SEWARD, Sr., M. D.,
F. W. SEWARD, Jr., M. D.,
Resident Physicians
Goshen, N. Y.

J. PERRY SEWARD, M. D.,
Associate Physician
200 W. 70th St., New York City

"WE ARE IN OUR SIXTEENTH YEAR"

Dr. Pettey's Retreats

FOR THE TREATMENT OF

ALCOHOL AND DRUG ADDICTIONS

MEMPHIS, TENN. DENVER, COLO. and OAKLAND, CALIF.

Methods employed render these addictions the most certainly and readily curable of all the chronic ailments.

Address the Retreat most convenient to you.

The Value of EXERCISE as a THERAPEUTIC AGENT Depends Upon Its Administration

Drs. WATSON L. and HENRY B SAVAGE are prepared to co-operate with physicians having patients who need personally directed and scientifically administered exercise. MECHANICAL VIBRATION ADMINISTERED. WE PRESCRIBE NO DRUGS AND DO NO FAMILY PRACTICE.

Dr. Savage Physical Development Institute and New York Normal School of Physical Education,
308 WEST FIFTY-NINTH STREET. Telephone, 17 Columbus.

Dr. Savage's Down-Town Exercise Rooms,
155 BROADWAY. Telephone, 1803 Cortlandt.

Dr. Savage's Summer Training Camps for Men and Women.
ADDRESS 155 BROADWAY.

DR. GIVEN'S SANITARIUM

"STAMFORD HALL"

Is a Sanitarium for Nervous and Mental Diseases, Opium and Alcoholic Habitues. A beautifully located country cottage home near the seashore, where patients can have home comforts and the special care desired in such case.

ONE HOUR FROM NEW YORK.

ADDRESS A. J. GIVENS, M. D., STAMFORD, CONN.

The Newton Sanatorium

FOR NERVOUS INVALIDS.

The Newton Nervine

Three buildings for mild mental cases.—Near Boston. Dr. N. EMMONS PAINE, West Newton, Mass.

Our Readers will please mention THE MEDICAL TIMES when writing to advertisers.

CREST VIEW SANITARIUM.

An ideal home for those seeking health, rest or recreation. High ground, dry soil, absolutely free from malaria. Beautiful scenery; very accessible.

H. M. HITCHCOCK, M.D., *Greenwich, Conn.*

Our Readers will please mention THE MEDICAL TIMES when writing to advertisers.

Dr. Ring's Sanatorium

Arlington Heights, Mass.

Established 26 years. Eight miles from Boston. Receives Nervous, Chronic and Convalescent Invalids. Accommodates Twenty-five patients.

ALLAN MOTT-RING, M.D., *Superintendent.*

Telephone 425 Arlington.

"The Standard"

SWAPS

DOCTOR: If you have an old operating chair and want to SWAP it for a new up-to-date and strictly first class operating table, address

The Perfection Chair Co. Indianapolis, Ind.

DR. BARNES SANITARIUM

STAMFORD, CONN.

(50 minutes from New York City.)

For MILD MENTAL and NERVOUS DISEASES

Also Cases of Neurasthenia and Nervous Prostration

With a separate detached department for ALCOHOLIC and DRUG HABITS. Under management of competent alienists. Splendid location overlooking Long Island Sound and City. Rates reasonable for excellent accommodations.

For terms and information, apply to

F. H. BARNES, M.D., Stamford, Conn.

Long Distance Telephone: 9 Stamford.

Plainfield Sanitarium

One hour from New York in the Watchung Mountains. High, dry and cool. Fine house, abundance of shade, every convenience and comfort with excellent table. Booklet, 'Phone, 84. Insane not received.

JUSTUS H. COOLEY, M. D., PLAINFIELD, N. J.

GEO. TIEMANN & CO.'S Eclipting Spring.

FOR FLAT FEET.

For particulars address 107 Park Row, NEW YORK.

ESTABLISHED 1862

CARL H. SCHULTZ'S

well-known, pure and correct Artificial Mineral Spring Waters; prepared from Distilled Water, are preferred to the Natural Waters on account of their purity and uniform composition.

IN SIPHONS, ALSO IN BOTTLES FOR OUT OF TOWN DELIVERY

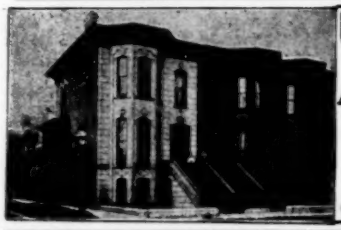
"Natural waters lose their original virtues more or less when removed from their sources, while artificial waters manufactured under pressure of carbonic acid gas, remain intact in all their ingredients."

Special rates upon sample shipments in bottles to Physicians residing out of town.

CARL H. SCHULTZ

Telephone, 3420 Madison Square

430-444 FIRST AVE., NEW YORK CITY



Union Park Maternity Home

STRICTLY ETHICAL.

ESTABLISHED MORE THAN TEN YEARS.

A Private Retreat for Unfortunate Girls and Women During Pregnancy and Confinement, with Every Facility for their Care and Protection.

Especially adapted to cases that wish to avoid publicity. We provide a home for the infant by adoption if desired. ☞ For Particulars and Terms send full History of the Case to

C. S. WOOD, M. D., 515 Carroll Avenue, CHICAGO.

NERVOUS AND MENTAL DISEASES.

Riverlawn Sanatorium Paterson New Jersey

DANIEL T. MILLSPAUGH, M. D.

Paterson, N. J.
45 Totowa Ave.
Tel. 254 Paterson.

New York Office: 170 West 78th Street.
Wed. and Sat., 11 A.M. to 12:30 P.M.
Tel. 6846 Riverside.

SAL HEPATICA

The original effervescing Saline Laxative and Uric Acid Solvent. A combination of the Tonic, Alterative and Laxative Salts similar to the celebrated Bitter Waters of Europe, fortified by addition of Lithium and Sodium Phosphates. It stimulates liver, tones intestinal glands, purifies alimentary tract, improves digestion, assimilation and metabolism. Especially valuable in rheumatism, gout, bilious attacks, constipation. Most efficient in eliminating toxic products from intestinal tract or blood, and correcting vicious or impaired functions.

Write for free samples.

BRISTOL-MYERS CO., Brooklyn, New York City.

HAUSWALDT'S
VIGOR CHOCOLATE
(Kraft-Chocolade)

An absolutely pure emulsified product of the entire cacao bean containing ***all*** its nutritious fats and albuminoids.

A palatable and digestible remedy superior in many cases to Cod Liver Oil. A reconstructive and tissue builder. A nerve tonic and stimulant. Prescribed extensively by leading physicians here and abroad.

For Sale by Principal Druggists.

Literature and samples on request at
466 Broadway, NEW YORK.

SELECTIONS

Climatic Effects. The winter weather is at hand and it is well known to what extent the cold will aggravate many female troubles. Physicians have used many preparations without having found one of them which gave satisfaction. Physicians trying Tyree's Antiseptic Powder will be satisfied that they have at last secured just the preparation they desired. Tyree's Antiseptic Powder can be used freely in any strength, at any time, and in any case. It is superior and preferable to the mercuric bichloride solution, because it is devoid of any element of danger. Its solubility is greater than that of bichloride of mercury tablets, and it does not erode delicate mucous membrane. The observant doctor will find that it makes a solution that may be thoroughly depended upon as a responsible and reliable antiseptic healing agent. It is scrupulously made, and its well-balanced chemical adjustment has established its medical popularity. A trial package will be mailed free of charge to physicians if they will send their name and address to Mr. J. S. Tyree, Chemist, Washington, D. C.

THE
Lambert Snyder Portable Vibrator
(9,000 TO 15,000 VIBRATIONS THE MINUTE)

The only portable non-electric vibrator in the world that gives direct true vibration. Nothing to charge, nothing to break, nothing to get out of order.

We have reduced the price from **$5.00** to **$2.00**; prepaid, on receipt of **$2.35**, to any part of the United States. Every physician should have our vibrator. We have over 3,000 physicians now using and recommending our vibrator. So simple anyone can work it. **SEND FOR FREE BOOKLET.**

LAMBERT SNYDER CO. Dept. 68D. 41 W. 24th St., New York

Helmitol
The Reinforced Hexamethylen-tetramin

Citarin
The Specific for Gout

Iothion
Topical Iodide Medication

PHARMACEUTICAL BAYER BAYER PRODUCTS

Alypin
The New Local Anesthetic

Aspirin
The Substitute for the Salicylates

Mesotan
Local Antirheumatic and Analgesic

Samples and Literature supplied by

CONTINENTAL COLOR AND CHEMICAL CO.

Selling Agents for the United States

P. O. Box 1935 New York 128 Duane Street

DR. BROUGHTON'S
SANITARIUM

FOR THE CARE OF OPIUM, OTHER DRUG ADDICTIONS, INCLUDING ALCOHOL AND SPECIAL NERVOUS CASES.

12 acres of ground; 200 shade trees (30 varieties); 25 rods on west bank of Rock River; 1 mile south of Post Office at 2007 S. Main Street.

Address R. BROUGHTON, M.D.,

Long Distance Phone Main 536. **ROCKFORD, ILL.**

Petro-Coco

PERFECT PETROLEUM PRESCRIPTION.

A Dietary Preparation and Therapeutic Fat-Maker of great value.

INDISPENSABLE IN ALL WASTING DISEASES.

Firolyptol with Kreosote

FORMULA:

Kreosote (Morson's)	
Eucalyptol	$\overline{aa}$ m x
Ol. Gossypii Sem. Purificat (Pancreatized)..	℥ ss
Firwein (modified)	q. s. ℥ j

The profession will find these two preparations indispensable in all conditions where their uses are indicated. They are prepared expressly for physicians' prescriptions and should be investigated by the profession.

SAMPLES AND LITERATURE ON APPLICATION.

THE TILDEN COMPANY

Manufacturing Pharmacists

NEW LEBANON, N. Y. ST. LOUIS, MO.

Free to Physicians

A New Book,

Diet after Weaning

We have issued this book in response to a constantly increasing demand for suggestions on the feeding and care of the child between the ages of one and two years.

We believe you will find it a useful book to put in the hands of the young mother.

The book is handsomely printed, fully illustrated and is bound in cloth. We shall be glad to furnish you copies for your patients entirely free.

A **postal card** with your name and address on it will bring you a copy by return mail.

MELLIN'S FOOD COMPANY, BOSTON, MASS.

The Mastery of Pain

is complete if

Phenalgin

is used

Of the greatest value for the relief of

Hemicrania
Cephalalgia
Neuralgia
Dysmenorrhea
Rheumatism
Gout
La Grippe

Colds and for The Reduction of Temperature

Instead of depressing, it stimulates

Send for "The Mastery of Pain," free by mail.

Generous samples on request

THE ETNA CHEMICAL CO.

313 West Street

New York

SELECTIONS

Treatment of Otorrhœa.—Dr. F. E. Burgevin describes his method as follows: Once daily I fill the ear with a warm solution of some good peroxide of hydrogen, beginning with a 25 per cent. solution, and increasing the strength every day until the pure drug is used. Hydrozone is the same, only twice as strong, and I use it when I can get it simply from motives of economy. After cleansing the ear thoroughly, which at first may require from twenty minutes to two hours, according to the foulness of the auditory canal, I then instill a few drops of Glycozone (warmed) and close the canal securely with a bit of absorbent cotton. This is allowed to remain until the next treatment.

The first cleansing should be very thorough, the peroxide being repeatedly instilled until all foaming ceases. In some cases it may require two, three or more treatments to cleanse the ear properly, especially if the lumen be occluded by a furuncle, or by swelling, or inspissated discharge. Do not be discouraged by any little difficulty like this, keep right on and you will finally succeed in getting the ear clean. After that, it is plain sailing. Thenceforth the daily treatment need not consume more than ten or twenty minutes. It is better to treat the case every day, but I have had good success with patients who could not come oftener than once a week. Do not give the patient medicine to use at home and expect to cure him; and never tell him what you are using.

In children who dread the procedure, I do not attempt much the first time or two, but strive to win their confidence, which is not ordinarily difficult, as the treatment is not at all painful and is always followed by a certain sense of relief, so that children who were in mortal terror of me at first will, after a few treatments, come to me of their own accord. Even babies of one and two years who would not suffer me to touch them at first, after experiencing the grateful relief afforded, will place the head on the chair in the proper position and gladly submit to the treatment.

When the diseased ear has once been thoroughly cleansed I consider my work as half done. Thenceforth improvement is usually very rapid, even old inveterate cases yielding in a few weeks. Relapses occur, but are easily managed, and I have seldom had a second relapse. Of course, mastoid disease, necrosis, polyps, etc., must receive appropriate treatment; but I have no hesitation in saying that all simple, uncomplicated cases (which include the vast majority of all cases under one year's duration) may be cured by this treatment if it is properly and thoroughly carried out.

Care must be taken to have the medicaments warm and not too hot—100 F. is about right—and to always stop up the ear with a bit of aseptic cotton before permitting the patient to leave the office. Be careful to use a piece of cotton of just the right size to securely close up the meatus; if too large it will work out, allowing the solution to escape and leaving the ear unprotected; if too small it will slip back into the canal and so fail of its effect.

Never syringe the ears in otorrhœa; it is risky and useless. I usually drop a little warm solution of sodium borate —5 per cent.—in the ear to prevent a slight stinging which sometimes ensues when active steps are taken. I also dry out the canal with cotton on an applicator, but this should be very carefully done with speculum, and the canal well lighted. These points are non-essentials, merely refinements which render the treatment a trifle more pleasant, perhaps; that is about all.

We have received for review from W. B. Saunders Company, publishers, the first volume of the latest great work on the Practice of Surgery. It is edited by the eminent surgeon, Dr. W. W. Keen, and the contributors are men of the highest standing.

The work will be completed in five large octavo volumes, one to be published about every three months. Both the literary and the physical part of this work are of the highest character, and prospective buyers of surgical text-books should be sure to examine this before deciding upon a selection. It is a beautiful work of art. The paper, type and illustrations could not be better.

We desire to inform our readers that the well known product, Valentine's Meat Juice meets all the requirements of the Act of the Congress known and referred to as "The Food and Drugs Act June 30th, 1906," and likewise that "This company has filed a guarantee with the United States Department of Agriculture."

BOVININE
IN
BLOOD POVERTY

BOVININE overcomes anaemia rationally and radically: First, because it supplies to the starving system a complete nutriment; second, by virtue of its organic iron, the blood is rapidly brought up to the normal standard; third, it needs no preparation or transformation at the hands of the vital machinery before it can be assimilated and converted into living force; fourth, because anaemias result largely from malnutrition and the elements lacking to produce normal nutrition are fully provided in Bovinine; fifth, Bovinine not only stimulates healthy cell proliferation, but carries the newly born cells on to full maturity by supplying to them the elements necessary for their complete support.

Bovinine Is Scientifically Prepared.
Bovinine's Formula Is Published.
Bovinine Is an Ethical Preparation.

THE BOVININE COMPANY

75 WEST HOUSTON STREET, NEW YORK CITY

The

TRADE

"MASTER"

MARK

Elastic Stockings

PULL ON LIKE BOOTS

The Old Way

The New Way

QUALITY THE BEST
PRICES MODERATE
A TRIAL WILL CONVINCE

POMEROY COMPANY . . New York

Three Offices with Competent Attendants in Charge

34 EAST 23d ST., NEW YORK
330 LENOX AVENUE, NEW YORK
584 FULTON STREET, BROOKLYN

POMEROY COMPANY . . New York

Mail Order Department:

34 East 23d Street, New York

Write for Catalogue and Order Blanks

SELECTIONS

Thermovibrassage.—This is the name given by F. W. Hitchings, Cleveland, Ohio (Journal A. M. A., October 27), to the combination of mechanical vibration and heat, either moist or dry, instead of vibration alone in the treatment of conditions in which the latter is employed. He accomplishes this by the insertion of a resistance coil into the same space ordinarily occupied by a ball vibratode. The coil is in a metal case and screws on to the shaft like an ordinary vibratode, and by a switch arrangement the current can only pass through the coil when the vibrator is running and the heat switch turned on, thus preventing danger of overheating. Turning on the heat switch for thirty seconds and then turning it off will give a temperature of 108° F., which is usually a suitable one for therapeutic use and one which can be borne with comfort, either dry or through a moist cloth, if moist heat is desired. Of course, the vibrator continues to vibrate whether the heat is on or off. He reports a case of neuralgia that was relieved by this application and mentions a number of conditions in which he has used this method to advantage, including sprains, bruises, torticollis, the pain of flat-foot and that of rheumatoid arthritis.

Sodium Citrate as a Modifier of Cow's Milk.—The chemical action of sodium citrate as a modifier of cow's milk is discussed at some length by J. W. England, Philadelphia (Journal A. M. A., October 20), who gives it as his opinion that sodium citrate, which is a neutral salt, has no decomposing action on casein calcium in the cold, and that, when the citrated milk is brought in contact with the gastric juice, the sodium citrate is decomposed into sodium chlorid and free citric acid; and that the sodium chlorid has more important physical and chemical properties in the digestion of cow's milk than has hitherto been suspected. He considers it very doubtful whether the free citric acid has any more important therapeutic value than the hydrochloric acid of the gastric juice stimulated in production by the presence of the sodium chlorid. The article is illustrated.

Publicity as a Factor in Venereal Prophylaxis.—P. A. Morrow, New York (Jour. A. M. A., October 20), declares that the concealment of facts regarding venereal diseases is a factor in perpetuating the evils attending them. The value of publicity in the suppression of evils has been amply demonstrated of late, but the venereal evil furnishes the most conspicuous example of an evil that flourishes in darkness and owes its power for mischief to the obscurity to which it has been relegated by traditional prejudice. Publicity here is desirable, he says, and is absolutely indispensible to the success of plans for prophylaxis. To the question, is publicity practicable, he answers that it is, and that the sentiment that forbids the open discussion of the subject has no place in the counsels of preventive medicine. Though the newspapers are not available, physicians can work with tracts, pamphlets, conferences, lectures, meetings of medical societies to which the public is invited. Another valuable agency would be a journal of popular medicine, devoted to the study and prevention of all communicable diseases, especially those spread in the ordinary relations of social life. Such a one has already been projected. He believes the present a favorable time to dispel the indifference of the public regarding this evil and to bring about reform.

Length of Sentences.—"The English sentence grows shorter and shorter," said an essayist (Phila. Bulletin). "Spenser, Sir Thomas More, Lyly, and Sydney used sentences of the average length of fifty-five words. Nowadays the sentences of the average journalist are only fifteen words long.

"Bacon introduced the short sentence. At a time when everybody else was using fifty words, he took to twenty-two. Praise be to Bacon.

"Macaulay used a very short sentence. Its average length was twenty-three words. Dickens' average was twenty-eight. Thackeray's was thirty-one.

"Matthew Arnold's sentences are long, but beautifully balanced. They are thirty-seven-ers. Henry James' are longer, and though intricate, graceful and well worth puzzling out, for in each of them a wonderful meaning is concealed. They are thirty-nine-ers.

"Kipling's sentences are twenty-one-ers. George Moore's are twenty-four-ers. H. G. Wells' are twenty-three-ers. Upton Sinclair's are twenty-two-ers."—The Writer.

The Pomeroy Company are celebrating their fortieth business year by moving their main office to the fine, modern, centrally located building, 34 East 23d Street.

Our readers are invited to visit the new establishment and inspect the new facilities for carefulness and excellence, which have always characterized this well-known house.

PETROGEN—WYETH

A MODIFIED MINERAL OIL, PERFECTLY BLAND AND NON-IRRITATING TO INFLAMED SURFACES

THE various MEDICATED-PETROGEN combinations, in addition to producing the usual local effects of the particular drug, are immediately carried by this rapidly penetrating vehicle through the integument and mucous surface into the general circulation, exerting the full constitutional properties of the medicament without the danger of gastric irritation which usually follows its use by the mouth.

Iodine and other drugs, when combined with this bland vehicle, may be rubbed on with the hand or massaged once or twice daily for a period of several weeks. This is not possible with the Tincture of Iodine, as several applications result in such extensive irritation that its further local use is seldom permissible. Clinical experience will substantiate our claim with reference to this new product, and we shall be glad, upon application, to supply samples to physicians for their personal demonstration.

PETROGEN COMBINATIONS

Put up in 2-oz. and 7-oz. bottles

Camphor-Petrogen	**20 per cent.**	**Ichthyol-Petrogen**	**10 per cent.**
Carbolic-Acid-Petrogen	**2 "**	**Iodine-Petrogen**	**5 "**
Carbolic-Acid-Petrogen	**5 "**	**Iodine-Petrogen**	**10 "**
Creosote-Petrogen	**20 "**	**Iodoform-Petrogen**	**3 "**
Guaiacol-Petrogen	**20 "**	**Menthol-Petrogen**	**5 "**

Methyl-Salicylate-Petrogen ..... 20 per cent.

LITERATURE SUPPLIED UPON APPLICATION

JOHN WYETH & BROTHER, Inc., PHILADELPHIA

Whooping-Cough Croup

A method which immediately palliates the attendant paroxysms, inhibits injurious sequelæ, and, with attention to a strengthening diet, brings the case to an early termination, with a minimum of internal medication, is worthy of trial.

Vaporized Cresolene has been used successfully for spasmodic coughs for more than twenty years.

Literature on Request

VAPO-CRESOLENE CO.
180 Fulton St., New York

THE FIDELITY AND CASUALTY CO.

OF NEW YORK.

GEORGE F. SEWARD, President
1876 ROBERT J. HILLAS, Vice-Pres. & Sec'y 1906

FIDELITY BONDS . . .
EMPLOYERS' LIABILITY
PERSONAL ACCIDENT .
HEALTH . . . . .
STEAM BOILER . . .
PLATE GLASS . . .
BURGLARY . . . . .
FLY WHEEL . . . .
BONDED LIST . . . .

Physicians' Liability Insurance

WE issue a policy of insurance designed particularly for the protection of physicians and surgeons against suits for damages arising from alleged malpractice.
¶ We defend such proceedings without cost to our clients, and if damages are awarded, we pay them.

ASSETS, Dec. 30, 1905, - - $7,683,067.93
LOSSES PAID to Dec. 30, 1905 21,742,060.27

DIRECTORS:

DUMONT CLARKE, WM. J. MATHESON,
WM. P. DIXON, ALEXANDER E. ORR,
ALFRED W. HOYT, HENRY E. PIERREPONT,
A. B. HULL, ANTON A. RAVEN,
GEO. E. IDE, JOHN L. RIKER,
W. G. LOW, W. EMLEN ROOSEVELT,
J. G. McCULLOUGH, GEO. F. SEWARD.

PRINCIPAL OFFICES,
Nos. 97-103 Cedar St., New York
Agents in all considerable towns.

Dolomol-Ichthyol 10%

(Magnesium Stearate and Ichthyol) **is the Most Satisfactory Form of Ichthyol for External Application. Sample of Pulvola Chm. Co. 160 William Street New York**

SELECTIONS

Digitalis and Strophanthus Compared.—At a stated meeting of the New York Academy of Medicine, Oct. 16, 1906, a valuable paper on the "Comparative Action of Digitalis and Strophanthus" was read by Dr. A. Hatcher. Some of the chief points developed by the writer were that in all probability strophanthus would never rival digitalis; that the insolubility of digitoxin was against its use; that digitalin in large doses was rapidly excreted by the kidneys. In the discussion following the presentation of Dr. Hatcher's paper, Dr. H. P. Loomis remarked that strophanthus was used comparatively little to-day as compared with ten or fifteen years ago, and he expressed the belief that strophanthus would never take the place of digitalis. Dr. Theodore Janeway, in participating in the discussion, believed digitalis to be the mainstay in cardiac therapeutics.

The discussion in its entirety followed a trend familiar to those who have carefully studied the therapy of digitalis. That is, there were statements indicative of confidence in the ultimate physiological action of digitalis, but these statements were usually coupled with others regarding unreliability in effect and slowness in action of digitalis in its older forms.

In connection with these statements it will not be amiss to refer to Digalen—Digitoxinum Solubile Clœtta. This medicament is now conceded to be a long step forward in the therapy of digitalis. It is stated by careful observers that Digalen provokes no gastric disturbances, is non-cumulative in action, that it allows of exact dosage and produces prompt effects. The point mentioned last is assuredly important, and in regard to it Dr. F. Schwyzer, New York, makes this statement in Medical News, Nov. 18, 1905: "Per os it (Digalen) acts much more quickly than the powder; hypodermically (deep into the muscles), in a few hours; intravenously, at once."

The Medical Record visiting list for 1906, dated and undated, is ready for delivery.

This edition has been revised to increase the amount of matter for emergencies. The most important change is in the list of remedies and their maximum doses.

This is one of the finest and most compact lists published. William Wood & Company, New York, are the publishers.

"I like the idea of the Two Irons in "Hemaboloids"

was the comment of a physician to whom this preparation was presented, and this peculiarity is worthy of special note.

Each Tablespoonful of Hemaboloids contains an amount of iron equal to that contained in 20 minims (1.33 c. c.) Tr. Ferri Chlor.

1. The larger part of the iron in Hemaboloids exists in organic combination with the nucleo-proteids obtained from vegetables rich in iron.

2. This vegetable food-iron is reinforced or "ferrated" with a less resistant organic iron compound, in order to more readily neutralize the sulphur-bearing compounds in the bowel, thus preventing the destruction and permitting the absorption of the food-iron in Hemaboloids, as well as that contributed by the daily food supply.

Dose: One Tablespoonful 3 or 4 times a day, Children in proportion.

THE PALISADE M'F'G CO
YONKERS, N. Y.

Disappearing Casts

The gradual disappearance of the casts, albumen and dropsy and increasing specific gravity, is the eloquent response of Chronic Nephritis to Triosine. It arrests degeneration in renal tissues and is the first successful treatment in chronic forms It contains no narcotics or sedatives, but is diuretic and purely eliminative. The fact that paracentesis has been required does not prevent recovery. Write for brochure outlining the first and only successful treatment for Chronic Nephritis to

THE TRIOSINE CHEMICAL CO.
406 Clay St., San Francisco, or nearest Distributer

Wholesale Distributers

New York, Hegeman and Co., 200 Broadway.
Chicago, I. D. Hilton, 34 Washington St.
Columbus, O., Columbus Pharmacal Co.
Indianapolis, Ind., Birk's Pharmacy.
Denver, Colo., Scholtz Drug Co.
Kansas City, Mo., Rankin Drug Co.
Portland, Or., Woodward, Clarke & Co.

Brochure outlining treatment around each bottle. Brochures also mailed on request.

THE HAIR

ITS GROWTH, CARE, DISEASES and TREATMENT

By C. HENRI LEONARD, A.M., M.D.

Has over 100 Engravings and gives **Self-treatment for all Diseases of the Hair, Beard and Scalp. 200 prescriptions in English given.**

If your hair is **Falling Out** it tells you how to stop it.
If it is **turning gray** it tells you how to prevent it.
If it is **growing slow** it tells you how to hasten its growth.
If **it is all out,** and the hair bulbs are not dead it tells you how to make it grow again.
If it is **growing unsightly in places** it tells you how to remove it.
It tells you how to **bleach** it, or **dye** it black, brown, red or of a blonde color.
It gives a long chapter upon **Hygienic Treatment.**
Also several chapters upon the diseases that make it fall out, such as "scall," "milk crust," **animal and vegetable parasites,** and how to prevent and destroy them.
Also many pages upon its marvelous growth, etc., etc.

This book has been highly commended by both the Medical and Secular press. Octavo, flexible covers, **320** pages—sent post-paid for one dollar.

LILLARD & CO., Publishers,
108 FULTON STREET, NEW YORK

Drugs in Powdered Form,

as exhibited in Upjohn's Friable Pills, are most easily penetrated by solvents, their particles have the greatest number of points of contact, and there is therefore the greatest OPPORTUNITY FOR SOLUTION and digestion. With the pill whose ingredients are cemented together with excipients, this opportunity decreases with the inevitable hardness which comes with age.

Your druggist has "Upjohn's." One word on your prescription will secure them.

THE UPJOHN PILL AND GRANULE CO.
KALAMAZOO, MICH.
92 FULTON ST., NEW YORK.

"Herzenstein, in common with all other writers on the subject, looks on Kumyss as a highly nutritious substance, the easy digestion of which, combined with a stimulating and then calming action, makes it one of the most effective of all foods."

—ZIEMSSEN.

Don't lose sight of the great value of Dr. BRUSH'S KUMYSS at this season. It is the Safest and Best food for Invalids and Convalescents. Don't endanger your practice with inferior brands and imitations. Always prescribe Dr. BRUSH'S KUMYSS from your Best druggist. If interested write for book. E. F. Brush, M.D., Mount Vernon, New York.

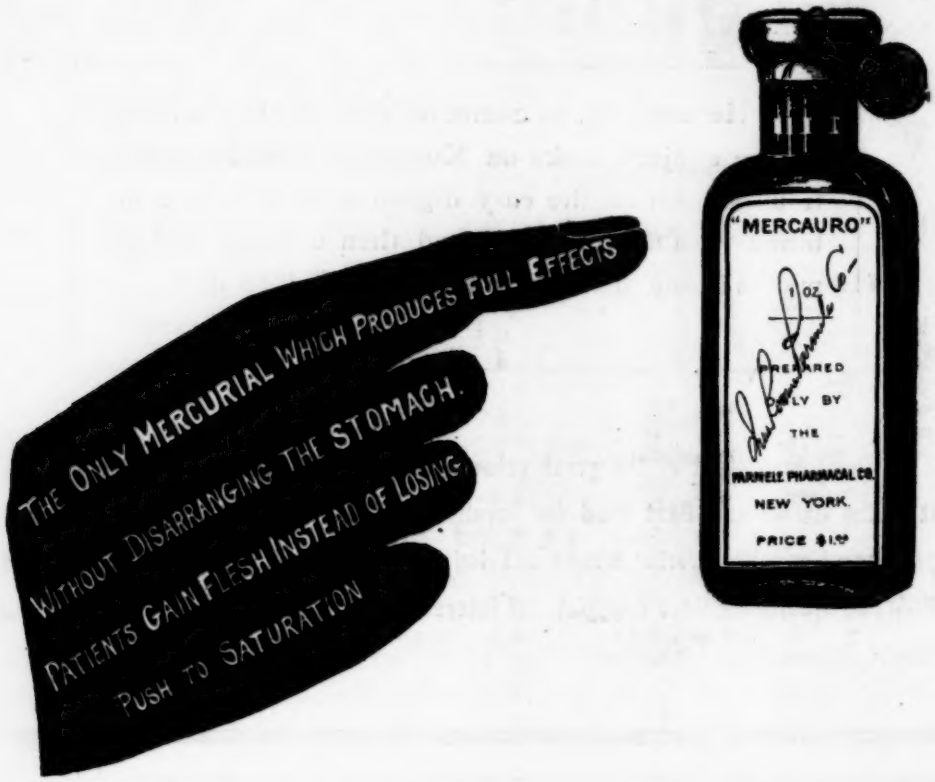
Atonic Indigestion

A large proportion of all cases of indigestion are the result of atony of the stomach and intestinal walls.

Gray's Glycerine Tonic

has a unique value in this particular condition as it rapidly **restores muscular vigor, increases secretory activity** and **checks fermentation.** As a consequence **the results are permanent—not transitory.**

The Purdue Frederick Co.,
298 Broadway, New York.



COLCHI-SAL

Each capsule of 20 centigrams contains ¼ milligram (1/250th grain) of crystallized colchicine dissolved in methyl salicylate from *betula lenta*, with appropriate adjuvants to ensure their tolerence by the stomach. Dose: From 8 to 16 capsules daily.

Combining the activity of colchicum and increasing the effects of the salicylates in

GOUT & RHEUMATISM

Colchi-Sal promotes a hyperleucocytosis in affected tissues, relieves hyperemia, increases activity of hepatic cells and of bone marrow, and stimulates diuresis.

Imitations of the *little green capsules* of true **Colchi-Sal**, cannot compare with the latter for reliability in effects.

E. FOUGERA & CO., New York. Leeming Miles Co., Ld., Montreal.
Anglo-American Pharmaceutical Co., Ld., Croydon, London. L. Midy, 113 Faub'g St. Honoré, Paris.